ABRIDGED REPORT OF AN

Address

ON THE

GASES OF THE BLOOD,

Delivered at the meeting of the British Medical Association in Glasgow,

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THE subject I have chosen is a consideration of the gaseous constituents of the blood in relation to some of the problems of respiration. This has been selected both because it deals with a province of physiology in which there are many profound problems connected with the molecular phenomena of life, and also because it gives me the opportunity of illustrating some of the methods of physiological research.

Respiration may be shortly defined as the function or group of functions by which an interchange occurs between the gases formed in the tissues of a living being and the gases of the medium in which it lives. It is interesting to take a brief survey of the investigations which laid the foundations of our knowledge of this subject, as it illustrates to us the fact taught by the history of all sciences that those truths which we now regard as elementary were at one time unknown, and that they have been gained by laborious inquiry. The oldest writers do not appear to have had any clear notions even as to the necessity for respiration. Hippocrates dimly recognised that during breathing a *spiritus* was communicated to the body. Many of the older anatomists, following Galen, thought that the "very substance of the air got in by the vessels of the lungs to the left ventricle of the heart, not only to temperate heat, but to provide for the generation of spirits." This notion of cooling the blood was held by Descartes (1596–1650) and his followers, and seemed to them to be the chief, if not the sole, use of respiration. In addition, they supposed it aided in the production and modulation of the voice, in coughing, and in the introduction of odours. The celebrated Van Helmont (1577–1664) strongly expresses these views, and attaches particular importance to the necessity for cooling the blood, which otherwise would become too hot for the body. About the middle of the seventeenth century clearer notions began to prevail. These rested partly on an anatomical and partly on a physical discovery. Malpighi (1621–1694) discovered that the minute bronchial tubes end in air vesicles, or membranous cavities, as he termed them, on the walls of which, in the frog, he saw with his simple microscope the blood flowing through capillaries. This pulmonary plexus was for many years termed the "rete mirabile Malpighii." The physical observations were made by the celebrated Robert Boyle (1627-1691), who describes in his treatise, entitled "New Experiments, Physico-Mechanical, touching the Spring of the Air," published in 1662, numerous experiments as to the behaviour of animals in the exhausted receiver of the air-pump. He showed that the death of the animals "proceeded rather from the want of air than that the air was over-clogged by the steam of their bodies." He also showed that fishes also enjoyed the benefits of the air, "for," said he, "there is wont to lurk in water many little parcels of interspersed air, whereof it seems not impossible that fishes may make some use, either by separating it when they strain the matter thorow their gills, or by some other way." His conclusion is "that the inspired and expired air may be sometimes very useful by condensing and cooling the blood;" but "I hold that the depuration of the blood in that passage is not only one of the ordinary but one of the principal uses of respiration." Thus, by the use of the air-pump, invented by Otto von Guericke about 1650, Boyle was able to make a contribution of fundamental importance to physiological science. He also first clearly pointed out the real cause of the influx of air into the lungs.

Boyle's observations were published in 1660, and in 1685 we find Borelli (1608–1679), in the second portion of his great work, "De Motu Animalium," giving expression to very clear notions regarding respiration. Thus in the eighty-second proposition he shows that the lungs are not the effective causes of respiration, but are passively concerned in the movements; and in the eighty-third proposition he states that the efficient cause of inspiration is the muscular force by which the cavity of the chest is increased and permits the lungs to be filled by the elastic force of the air. Borelli was also the first, as shown in the eighty-first proposition of his work, to make an estimate of the quantity of air received by a single expiration. At the same time he attributed calm expiration to the elastic resiliency of the ribs, and he pointed out that the deepest expiration could not entirely empty the lungs of air (Propositions 92, 93, and 94). Whilst Borelli thus recognised the air as necessary to animal life, he naturally failed in explaining why this was so, being unacquainted with the composition of the air and of the so-called "fuligineous vapours" (carbonic acid, aqueous vapour, &c.) which were supposed to exist in expired air.

One of the contemporaries of Boyle, Pascal, Spinoza, Barrow, Newton, and Leibnitz—all men of the first intellectual rank—was Dr. Robert Hooke, one of the most versatile and able of scientific thinkers. Hooke was born in 1635, and died in 1703. One of the founders of the Royal Society, its early proceedings show that there was scarcely any department of science at the time to which he did not make important contributions. In particular, he showed a remarkable experiment in October, 1667, to the Royal Society. This experiment showed that it was the fresh air, and not any alteration in the capacity of the lungs, which caused the renewal of the heart's beat. It has been said that a similar experiment was performed by Vesalius, but with this difference, that whilst Vesalius observed the fact, he failed in giving a rational explanation. He supposed that the movements of the lungs affected the movements of the heart, but he did not see, as Hooke did, that the heart moved because it was supplied with blood containing fresh air.

We thus see that the necessity of a continual supply of fresh air was recognised as being essential to life. It was further surmised that the air imparted something to the blood, and received something in return; but no further advance was made in this direction until the researches of Mayow, a name now famous in the early history of chemistry and of physiology. John Mayow was born in 1645, and died at the early age of thirty-four. His principal work was published in Oxford in 1674. In it, by many ingenious experiments, he showed that combustion diminishes the volume of the air and alters its qualities; that respiration also affects the quality of the air; that an animal will die if kept in a confined space full of air, a fact to be explained, according to Mayow, by saying that the animal had used the respirable portion of the air, and that the residue was unfit for life; and, finally, he showed that an animal suffers if placed in an atmosphere the qualities of which have been injured by combustion. Further, he gave the name of "nitro-aërial spiritus" to the "principle" in the air, which he said had to do with life, muscular action, and combustion. Thus, he no doubt came near the discovery of oxygen, made by Priestley nearly a century later. It would be difficult to estimate the enormous influence on theories of combustion and of respiration exerted by the researches of Boyle, Hooke, and Mayow. They prepared the way in physiological science for the next great step—namely, the identification of the gaseous elements concerned in respiration. The dependence of progress in physiology on the state of scientific opinion regarding chemical and physical questions could not be better illustrated than in the history of physiological ideas regarding respiration. Thus the researches of Boyle with the air-pump did much to explain the mere mechanism of breathing. Hooke made this even more apparent, and Mayow gave greater precision to the idea that in respiration the blood lost something and gained something.

The next step in the physiology of respiration was the discovery in 1754 of carbonic acid by Joseph Black, then Professor of Medicine and Chemistry in this University. He showed that in the case of magnesia alba (carbonate of magnesia) the disappearance of the effervescence on treatment with an acid after heating was accompanied by a loss of weight. The substance thus given off he called "fixed air," or what we now term carbonic acid. This led to an examination of the salts of lime, and in 1757 he made two important physiological discoveries—namely, (1) that the fixed air was injurious to animal life; and (2) that fixed air was produced by the action of respiration.

Fifteen years afterwards — namely, in 1772 — Joseph Priestley examined the chemical effects produced by the burning of candles and the respiration of animals upon ordinary air; and he made the important discovery that after air had lost its power of supporting combustion, as by the burning of candles, this property might be restored by the agency of plants. Pushing his experiments still further, he found that air, deteriorated by the breathing of animals, might again become suitable for respiration by the action of plants.

Thus the chemical researches of Black and Priestley showed that in respiration oxygen was consumed and carbonic acid produced, although the latter fact, owing to the theoretical views of Priestley as to phlogiston, was not fully appreciated by him. Within a year after Priestley's discovery, a paper on respiration was written by Lavoisier (1743–1794), in which he showed that Priestley was correct in stating that the air lost oxygen in breathing; but Lavoisier specially pointed out that it had gained carbonic acid. No doubt Lavoisier was well acquainted with Black's researches, as is shown by the correspondence between these distinguished men. Lavoisier was the first, however, to make a quantitative examination of the changes produced in the air by breathing. During 1789 and 1790, by a special apparatus, Lavoisier and his friend Seguin attempted to measure the changes in the air produced by the breathing of man. These researches are not of value so much for the results they gave as for the method employed. Lavoisier constructed a still more elaborate apparatus, with which he began experiments. This research, however, he never finished, as in 1794 he fell a victim to the blind fury of Robespierre.

Stephen Hales (1677–1761) attempted to measure the amount of aqueous vapour given off by the lungs by breathing through a flask filled with wood-ashes, which absorbed the moisture, and he estimated the amount at about twenty ounces in twenty-four hours. Similar observations were afterwards made by Menzies and by the eminent surgeon, Mr. Abernethy.

Various other attempts were made to estimate the amount of respiratory changes. In particular, Sir Humphry Davy, in March, 1798, investigated the physiological action of nitrous oxide gas. In this research, published in 1800, he began by observations upon animals, and observations as to the effect of the gas on life, on muscular irritability, on the action of the heart, and on the colour of the blood are recorded with great precision. He then passed on to observations on the respiration of hydrogen, and this led him to a repetition of the experiments of Lavoisier and Goodwin. Next he subjected himself to experiment, and gave himself and friends to experiment, and records a number of interesting physiological and psychical phenomena.

Another eminent man who contributed largely to the physiology of respiration was Lazarus Spallanzani, who was born in 1729 and died in 1799. He became Professor of Logic, Mathematics, and Greek in Reggio in 1754, and about this date published researches on infusoria. In 1760 he became Professor in the University of Modena. In 1765 he showed that many microscopic animalculæ were true animals, and in 1768 he published his celebrated researches on the reproduction of portions of the body removed from worms, snails, salamanders, and toads. He paid special attention to the great question of spontaneous generation, showing that infusions of animal and vegetable substances exposed to a high temperature and hermetically sealed never produced living things. He also investigated respiration, more particularly in invertebrates. He showed that many such animals breathed by means of the skin as well as by the special breathing organs. He placed many animals, but more especially different species of worms, in atmospheres of hydrogen and nitrogen, and showed that, even in these circumstances, carbonic acid was produced. He also showed the production of carbonic acid by the dead bodies of such animals, and reasoned from this that the carbonic acid was produced directly from the dead tissues and not from the action of the oxygen of the air. He contrasts the respiration of cold-blooded and warm-blooded animals, and shows the peculiarities of respiration in hibernating animals. Nor were these by any means superficial observations. They were usually quantitative, and by the use of the eudiometer he analysed the air before and after respiration.

In 1809 the subject of aquatic breathing was investigated with great care by Provençal and Humboldt. They collected and analysed the gases of water before and after fishes had lived in it for a certain time, and showed that oxygen was consumed and carbonic acid produced by these creatures.

We have now seen how gradually knowledge was arrived at as to the respiratory exchanges. At the beginning of the present century it was recognised that expired air had lost oxygen, gained carbonic acid and aqueous vapour, and had become hotter. Since then many researches have been carried on to determine with accuracy the quantities of these substances.

The results are—first, the expired air, for its own temperature is saturated with aqueous vapour; secondly, the expired air is less in volume than the inspired air to the extent of about one-fortieth of the volume of the latter; thirdly, the expired air contains about 4 per cent. more carbonic acid and from 4 to 5 per cent. less oxygen than inspired air; fourthly, the total daily excretion of carbonic acid by an average man amounts to 800 grammes in weight, or 406 litres in bulk. This amount of carbonic acid represents 218·1 grammes of carbon and 581·9 grammes of oxygen. The amount of oxygen, however, actually consumed is about 700 grammes; so that nearly 120 grammes of oxygen absorbed are not returned by the lungs, but disappear in the body. It must be remembered, however, that carbonic acid escapes by the skin and other channels. These figures may be taken as averages, and are subject to wide variations depending on nutritional changes.

There is, however, another side to the problem of respiration—namely, a consideration of the chemical changes involved in the process.

According to Lavoisier, respiration was really a slow combustion of carbon and of hydrogen. The air supplied the oxygen and the blood the combustible materials. The great French chemist, however, did not entirely commit himself to the opinion that the combustion occurred only in the lungs. He says that a portion of the carbonic acid may be formed immediately in the lung, or in the bloodvessels throughout the body, by combination of the oxygen of the air with the carbon of the blood. Lavoisier's opinions were understood correctly by only a few of his contemporaries, and a notion prevailed that, according to him, combustion occurred only in the lungs, and that the changes in these organs were the main sources of animal heat. Such a notion, however, was contrary to the opinion of the great mathematician Lagrange, announced in 1791, a few years after the first publication of Lavoisier's on respiration. Lagrange saw that if heat were produced in the lungs alone the temperature of these organs might become so high as to destroy them; and he therefore supposed that the oxygen is simply dissolved in the blood, and in that fluid combined with carbon and hydrogen, forming carbonic acid and aqueous vapour, which were then set free in the lungs.

Now, if the production of carbonic acid in a given time depended upon the amount of oxygen supplied in the same time, these views of Lavoisier and Lagrange would be correct; but Spallanzani had shown that certain animals confined in an atmosphere of nitrogen or of hydrogen exhaled carbonic acid to almost as great an extent as if they had breathed air. He was therefore obliged to say that carbonic acid previously existed in the body, and that its appearance could not be accounted for by the union of oxygen with the carbon of the blood.

It might thus be said that two theories of respiration were before physiologists—the one, that combustion occurred in the lungs or venous blood, furnishing carbonic acid and aqueous vapour, which were exhaled by the lungs; the other, that there was no such combustion, but that oxygen was absorbed by the lungs and carried to the tissues, whilst in these carbonic acid was secreted, absorbed by the blood, carried to the lungs, and there exhaled. Some writers, soon after Lavoisier, misunderstood, as I have already stated, the opinions of that distinguished man, and taught that in the lungs themselves there was a separation of carbon which united immediately with the oxygen to form carbonic acid. But this was not really Lavoisier's opinion; and we have to do, therefore, with two theories, which have been well named "the theory of combustion" and "the theory of secretion."

The difficulty felt by the older physiologists in accepting the secretion theory was the absence of proof of the existence of free oxygen and carbonic acid in the blood. Consequently, so long as physiologists had no definite knowledge regarding gases in the blood, the combustion theory, in the most limited sense, held its ground. This theory, although fruit-

FIG. 1.

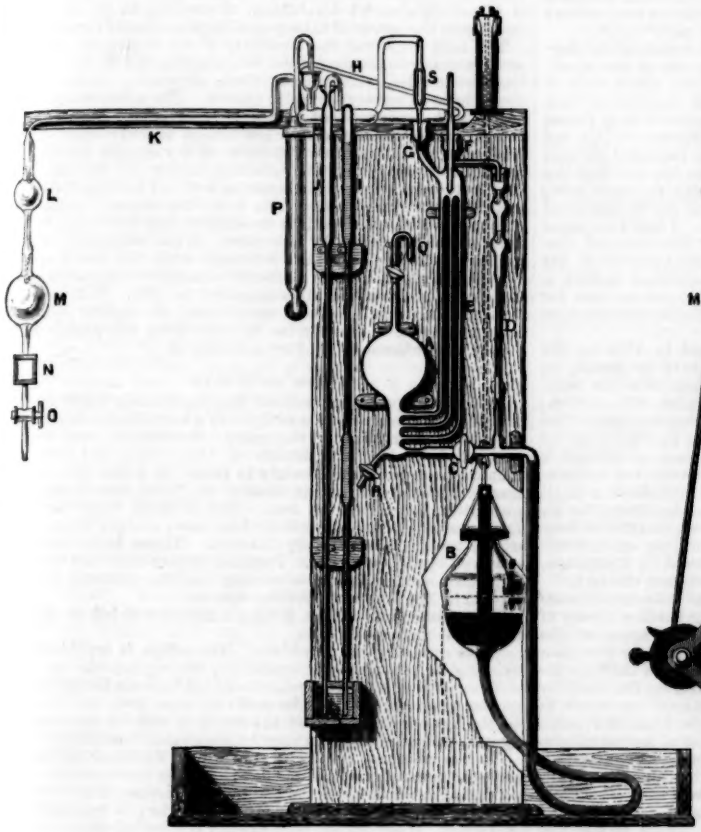
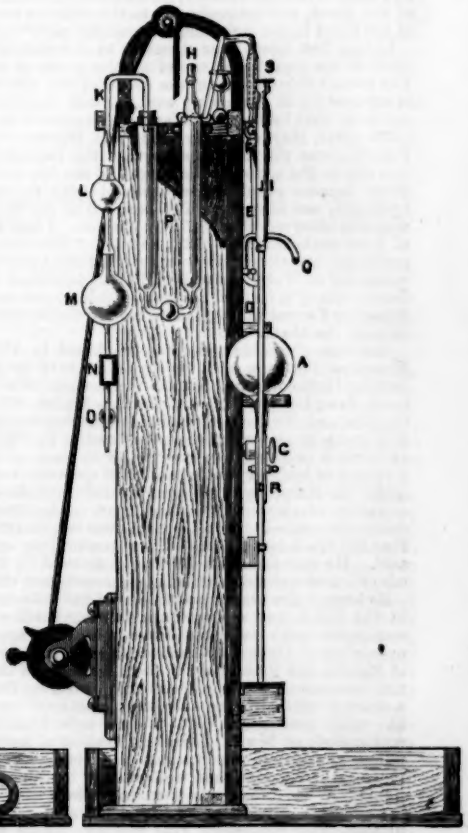


FIG. 2.



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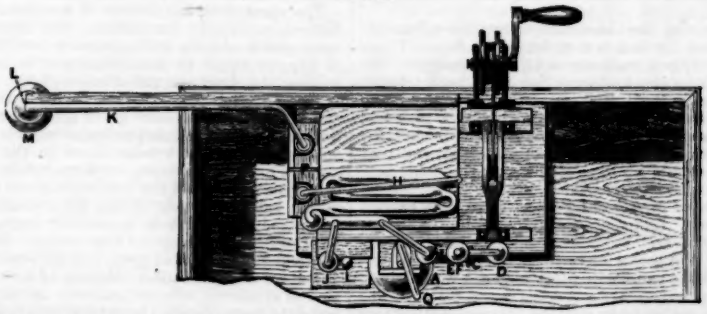


Views of a gas pump constructed for the purpose of extracting and collecting the gases of the blood, and suitable for the physiological lecture-table. These views have been correctly drawn on the scale of 1 to 10 by my friend the Rev. A. Hanns Geyer.* Fig. 1, front view: A, glass bulb connected by horizontal glass tube with bulb B; this tube guarded by stopcock C. By elevating B, A is filled with mercury, stopcock of delivery tube Q is closed, and B is lowered; A is thus exhausted and air is drawn into it by tubes E, connected by G with drying apparatus and blood chamber. I, permanent barometer. J, barometer gauge tube connected with part of instrument to be exhausted. Both I and J dip into mercury trough seen below; S, a glass float to prevent mercury from running into drying apparatus when B is raised. After A and the drying apparatus and the blood chamber have been well exhausted, B is raised and mercury may be allowed to pass up D, and then the apparatus acts as a Sprengel pump by the three tubes E. Fig. 2, side view of apparatus: same references. Fig. 3, drying apparatus, placed on a shelf at the top of the pump, consisting of H, tubes containing solid phosphoric acid and U tube P, seen in Fig. 2, containing sulphuric acid. The tube K passes to receiver. In the drawing it is seen to be connected with an apparatus suitable for projecting the spectrum of oxy-hæmoglobin by lime or electric light on screen; then exhausting the blood of oxygen and showing the spectrum of reduced hæmoglobin. L and M, froth chambers with traps; N, parallel-sided chamber for blood; O, stopcock. The whole pump is modelled on one I obtained about ten years ago from Messrs. Mawson and Swan, of Newcastle, but it has been much altered and added to so as to make it suitable for physiological demonstration. It is evident that the gases can be readily obtained for analysis by driving out of A by delivery tube Q. A rough demonstration of the gases can be made in from five to ten minutes.

* The pump can be obtained from Mr. W. Potter, glass blower, Physical and Physiological Laboratories, University of Glasgow, who will give information as to cost.

ful of many ideas regarding respiration and animal heat, was abandoned in consequence of the evidence afforded by two lines of inquiry—namely, researches regarding the gases of the blood, and researches as to the relative temperature of the blood in the right and left cavities of the heart.

Let me first direct your attention to the gradual development of our knowledge regarding the gases of the blood. The remarkable change in the colour of the blood when it is exposed to, or shaken up with, air was observed so long ago as in 1665 by Fracassati, and is also alluded to by Lower (1631–1691), Mayow, Cigna (1773), and Hewson (1774); but Priestley was the first to show that the increased redness was due to the action of the oxygen of the air, and that the blood became purple when agitated with carbonic acid, hydrogen, and nitrogen. The presence of gas in the blood was first observed about 1672 by Mayow. I find in a paper of Leeuwenhoek (1632–1723), entitled "The Author's Experiments and Observations respecting the quantity of Air contained in Water and other Fluids," published in 1674, a description of a method devised by this ingenious man for detecting the existence of air in certain fluids, and amongst them in the blood.

Gas was also obtained from the blood in 1799 by Sir Humphry Davy, in 1814 by Vogel, in 1818 by Brand, in 1833 by Hoffmann, and in 1835 by Stevons. On the other hand, John Davy, Bergman, Johannes Müller, Mitscherlich, Gmelin, and Tiedeman failed in obtaining any gas. The first group of observers, either by heating the blood, or by allowing it to flow into a vacuum, or by passing through it a stream of hydrogen, obtained small quantities of carbonic acid. Sir Humphry Davy was the first to collect a small quantity of oxygen from the blood. John Davy, by an erroneous method of investigation, was led, in 1828, to deny that the blood either absorbed oxygen or gave off carbonic acid. He was shown to be wrong, in 1830, by Christison, who devised a simple method of demonstrating the fact.

So long as the evidence in favour of the existence of gases in the blood was so uncertain, the combustion theory of respiration held its own. At last, in 1836, appeared the researches of Heinrich Gustave Magnus, latterly Professor of Physics and Technology in the University of Berlin. He first attempted to drive off carbonic acid from the blood by a stream of hydrogen, and thus obtained as much as 34 cubic centimetres of carbonic acid from 62·9 cubic centimetres of blood. He then devised a mercurial air-pump, by which it was possible to exhaust a receiver to a much greater extent than was possible by the ordinary air-pump. When blood was introduced into such a vacuum, considerable quantities of carbonic acid, oxygen, and nitrogen were obtained. This research marks an epoch in physiological discovery, as it threw a new light on the function of respiration by demonstrating the existence of gases in the blood.

Magnus, by allowing the blood to flow into an exhausted receiver surrounded by hot water, set gases free. These were found to be oxygen, carbonic acid, and nitrogen. He further made the important observation that both arterial and venous blood contained the gases, the difference being that in arterial blood there was more oxygen and less carbonic acid than in venous blood. Magnus concluded that the gases were simply dissolved in the blood, and that respiration was a simple process of diffusion, carbonic acid passing out and oxygen passing in.

Further researches of a similar kind have been carried out by Setschenow, Ludwig, Alexander Schmidt, Bert, Pflüger, and others, and ingenious methods of collecting and of analysing the gases have been devised. To Professor Pflüger and his pupils in particular are we indebted for the most complete series of gas analyses on record. The result has been to enable us to give the average composition of the gases of the blood as follows. From 100 volumes of dog's blood there may be obtained:

	Oxygen.	Carbonic Acid.	Nitrogen.
Arterial	18·4 to 22·6, mean 20	30 to 40	1·8 to 2
Venous	Mean 11·9	43 to 48	1·8 to 2

the gases being measured at 0° C. and 760 mm. pressure. The venous blood of many organs may contain less than 11·9 per cent. of carbonic acid, and the blood of asphyxia may contain as little as 1 volume per cent. It is clear, then, that the gases of the blood do not exist in a state of simple solution, but that they are largely combined with certain constituents of the blood. Take, for example, the case of oxygen. Berzelius showed long ago that 100 volumes of water will absorb, at a given temperature and pressure, 2·9 volumes of oxygen; while in the same circumstances, 100 volumes of serum will absorb 3·1 volumes, and 100 volumes of blood will absorb 9·6 volumes. Something in the blood must have the power of taking up a large amount of oxygen.

The next step was the discovery of the important part performed in respiration by the colouring matter of the red blood corpuscles. Chemically, these corpuscles consist of about 30 to 40 per cent. of solid matter. The solids contain only about 1 per cent. of inorganic salts, chiefly those of potash, whilst the remainder are almost entirely organic. Analysis has shown that 100 parts of dry organic matter contain of hæmoglobin, the colouring matter, no less than 90·54 per cent.; of proteid substances, 8·67; of lecithin, 0·54; and of cholesterine, 0·25. The colouring matter, hæmoglobin, was first obtained in a crystalline state by Funke in 1853, and subsequently by Lehmann. It has been analysed by Hoppe-Seyler and Carl Schmidt, with the result of showing that it has a perfectly constant composition. Hoppe-Seyler's analysis first appeared in 1868. It is now well known to be the most complicated of organic substances, having a formula, as deduced from the analyses I have just referred to, by Preyer (1871), of

$$C_{600}H_{960}N_{154}FeS_3O_{179}$$

In 1862 Hoppe-Seyler noticed the remarkable spectrum produced by the absorption of light by a very dilute solution of blood. Immediately thereafter, the subject was investigated by Professor Stokes of Cambridge, and communicated to the Royal Society in 1864. If white light be transmitted through a thin stratum of blood, two distinct absorption bands will be seen. One of these bands next D is narrower than the other, has more sharply defined edges, and is undoubtedly blacker. These facts were observed by Hoppe-Seyler. Professor Stokes made the very important contribution of observing that the spectrum was altered by the action of reducing agents.

From these observations Professor Stokes was led to the important conclusion that:

"The colouring matter of blood, like indigo, is capable of existing in two states of oxidation, distinguishable by a difference of colour and a fundamental difference in the action on the spectrum. It may be made to pass from the more to the less oxidised state by the action of suitable reducing agents, and recovers its oxygen by absorption from the air."

To the colouring matter of the blood Professor Stokes gave the name of cruorine, and described it in its two states of oxidation as scarlet cruorine and purple cruorine. The name hæmoglobin, given to it by Hoppe-Seyler, is generally employed. When united with oxygen it is called oxyhæmoglobin, and when in the reduced state it is termed reduced hæmoglobin, or simply hæmoglobin.

The spectroscopic evidence is complete. Hoppe-Seyler, Hüfner, and Preyer have shown also that pure crystallised hæmoglobin absorbs and retains in combination a quantity of oxygen equal to that contained in a volume of blood holding the same amount of hæmoglobin.

These important researches, the results of which have been amply corroborated, have given an explanation of the function of the red blood corpuscles as regards respiration. The hæmoglobin of the venous blood in the pulmonary artery absorbs oxygen, becoming oxyhæmoglobin. This is carried to the tissues, where the oxygen is given up, the oxyhæmoglobin being reduced. Thus, the colouring matter of the red blood corpuscles is constantly engaged in conveying oxygen from the lungs to the tissues. Probably the union of hæmoglobin with oxygen, and its separation from it, are examples of dissociation—that is, of a chemical decomposition or synthesis, effected entirely by physical conditions; but data regarding this important question are still wanting. If the union of oxygen with the colouring matter is an example of oxidation, it must be attended with the evolution of heat, but, so far as I know, this has not been measured. If heat were produced in considerable amount, the arterial blood returned from the lungs to the left auricle would be hotter than the blood brought to the right auricle by the veins. This, however, is not the case, as the blood on the right side of the heart is decidedly warmer than the blood on the left, a fact usually accounted for by large influx of warm blood coming from the liver. The heat exchanges in the lungs are of a very complicated kind. Thus heat will be set free by the formation of oxyhæmoglobin; but, on the other hand, it will be absorbed by the escape of carbonic acid, and by the formation of aqueous vapour, and a portion will be used in heating the air of respiration. The fact that

the blood in the left auricle is colder than that of the right auricle is, therefore, the result of a complicated series of heat exchanges, not easy to follow.

Our knowledge as to the state of the carbonic acid in the blood is not so reliable. In the first place, it is certain that almost the whole of the carbonic acid which may be obtained exists in the plasma. Defibrinated blood gives up only a little more carbonic acid than the same amount of serum of the same blood. Blood serum gives up to the vacuum about 30 volumes per cent. of carbonic acid; but a small part—according to Pflüger about 6 volumes per cent.—is given up only after adding an organic or mineral acid. This smaller part is chemically bound, just as carbonic acid is united to carbonates, from which it can be expelled only by a stronger organic or mineral acid. The ash of serum yields about one-seventh of its weight of sodium; this is chiefly united to carbonic acid to form carbonates, and a part of the carbonic acid of the blood is united to those salts. It has been ascertained, however, that defibrinated blood, or even serum containing a large number of blood corpuscles, will yield a large amount of carbonic acid, even without the addition of an acid. Thus, defibrinated blood will yield 40 volumes per cent. of carbonic acid—that is, 34 volumes which would be also given up by the serum of the same blood (without an acid), and 6 volumes which would be yielded after the addition of an acid. Something, therefore, exists in defibrinated blood which acts like an acid in the sense of setting free the 6 volumes of carbonic acid. Possibly the vacuum may cause a partial decomposition of a portion of the hæmoglobin, and, as suggested by Hoppe-Seyler, acid substances may thus be formed. But what is the condition of the remaining 30 volumes per cent. of carbonic acid which are obtained by the vacuum alone? A portion of this is probably simply absorbed by the serum; this part escapes in proportion to the decrease of pressure, and it may be considered to be physically absorbed. A second part of this carbonic acid must exist in chemical combination, as is indicated by the fact that blood serum takes up far more carbonic acid than is absorbed by pure water. On the other hand, this chemical combination is only a loose one, because it is readily dissolved by the vacuum.

The nitrogen which is contained in the blood to the amount of from 1·8 to 2 volumes per cent. is probably simply absorbed, for even water is able to absorb 2 volumes per cent. of this gas.

If we then regard the blood as a respiratory medium having gases in solution, we have next to consider what is known of the breathing of the tissues themselves. Spallanzani was undoubtedly the first to observe that animals of a comparatively simple type used oxygen and gave up carbonic acid. But he went further, and showed that various tissues and animal fluids, such as the blood, the skin, and portions of other organs, acted in a similar way. These observations were made before the beginning of the present century, but they appear to have attracted little or no attention until the researches of Georg Liebig on the respiration of muscle, published in 1850. He showed that fresh muscular tissue consumed oxygen and gave up carbonic acid. In 1856, Matteucci made an important advance by observing that muscular contraction was attended by an increased consumption of oxygen and an increased elimination of carbonic acid. Since then, Claude Bernard and Paul Bert, more especially the latter, have made numerous observations regarding this matter. Paul Bert found that muscular tissue has the greatest absorptive power. Thus we arrive at the grand conclusion that the living body is an aggregate of living particles, each of which breathes in the respiratory medium passing from the blood.

In connexion with the respiration of tissue, as determined by the analysis of the blood gases and of the gases of respiration, there arises the interesting question of the ratio between the amount of oxygen absorbed and the amount of carbonic acid produced, and very striking contrasts among animals have thus been determined. Thus in herbivora the ratio of the oxygen absorbed to the carbonic acid produced, or the respiratory quotient, as it is termed by Pflüger, $\frac{CO_2}{O}$, amounts to from 0·9 to 1·0, while in carnivora it is from 0·75 to 0·8. Omnivora, of which man may be taken as the example, come between $\frac{CO_2}{O}$, 0·87. The quotient is greater in proportion to the amount of carbohydrate in the diet, whether the animals are carnivora, herbivora, or omnivora. The respiratory quotient becomes the same, about 0·75, in starving animals—a proof that the oxidations are kept up at the cost of the body itself, or, in other words, the starving animal is carnivorous. The intensity of respiration in different animals is well shown in the following table, in which the amount of oxygen used is given per kilogramme of body weight per hour.[1]

Animal.	O in grammes.	Respiratory quotient. $\frac{CO_2}{O}$
Cat	1·007	0·77
Dog	1·183	0·75
Rabbit	0·918	0·92
Hen	1·300	0·93
Small singing birds	11·360	0·78
Frog	0·084	0·63
Cockchafer	1·019	0·81
Man	0·417	0·78
Horse	0·563	0·97
Ox	0·552	0·98
Sheep	0·490	0·98

I have now placed before you the generally accepted doctrines regarding the problems of respiration. But one has only to examine them closely to find that there are still many difficulties in the way of a satisfactory explanation of the function. For example, is the union of hæmoglobin with oxygen a chemical or a physical process? If oxyhæmoglobin is a chemical substance, how can the oxygen be so readily removed by means of the air-pump? On the other hand, if it is a physical combination, why is the oxygen not absorbed according to the law of pressures?

The absorption of oxygen probably takes place as follows. The inspired air is separated in the alveoli of the lung by delicate epithelial cells, and the endothelial wall of the pulmonary capillaries from the blood which circulates in the latter. The exchange of gas takes place through these thin porous membranes, so that the velocity of the transit must be practically instantaneous. As the oxygen is bound loosely to the hæmoglobin of the corpuscles, the laws of diffusion can have only a secondary influence on its passage, and only so far as it has to pass into the plasma so as to reach the blood corpuscles. The plasma will absorb, at 35° C., about 2 volumes per cent., if we take the coefficient absorption of the plasma as equal to that of distilled water. Many of the blood corpuscles of the pulmonary blood have just returned from the tissues with their hæmoglobin in the reduced state, and the latter at once withdraws oxygen from the plasma. In an instant more oxygen passes out of the pulmonary air into the plasma, from which the oxygen is again quickly withdrawn by the hæmoglobin of the corpuscles, and so on. It is a remarkable fact that, in certain circumstances, tissues and even organs may continue their functions with little or no oxygen.

The conditions regulating the exchange of carbonic acid are quite different. Carbonic acid is contained in air only in traces, and its tension in the air is almost nothing. The air contained in the lungs is not wholly expelled by each respiration, but a part of the air of expiration, rich in carbonic acid, always remains in the lung. It is evident, then, that by the mixing of the air of inspiration with the air in the alveoli the latter will become richer in oxygen and poorer in carbonic acid. The air in the alveoli, however, will always contain more carbonic acid than atmospheric air. Pflüger and Wolffberg have found the amount of carbonic acid in alveolar air to be about 3·5 volumes per cent., therefore its tension will be $\frac{3{\cdot}5 \times 760}{100} = 27$ mm. of mercury. The tension of the carbonic acid in the blood of the right ventricle (which may be taken as representing venous pulmonary blood) amounts, according to Strassburg, to 5·4 per cent. = 41 mm. of mercury, and is 14 mm. higher than that in the alveoli. Carbonic acid will therefore pass by diffusion from the blood into the alveolar air until the tension of the carbonic acid has become the same in the blood and in alveolar air. Before the state of equilibrium is reached, expiration begins, and removes a part of the air out of the alveoli, so that the tension of the carbonic acid again becomes less than that in the blood. During the expiration and the following pause, the elimination of carbonic acid continues. This physical arrangement has the advantage for diffusion, that by expiration the whole air is not driven out of the lungs; for if expiration had emptied the lungs of air, the diffusion would have ceased altogether during

[1] Dr. Immanuel Munk: Physiologie des Menschen und der Säugethiere, 1888, p. 82.

expiration and the following pause, and diffusion would have been possible only during inspiration. There would thus have been an incomplete separation of the carbonic acid from the pulmonary blood. But as air remains in the lungs, the stream of diffusion between pulmonary blood and pulmonary air goes on steadily and fluctuations occur only in regard to its velocity.

Any account of the gaseous constituents of the blood would be incomplete without a reference to the ingenious theory recently advanced by Professor Ernst Fleischl v. Marxow, of Vienna, and explained and illustrated in his work,[2] a work distinguished alike by the power of applying a profound knowledge of physics to physiological problems, and by a keen and subtle dialectic. The author starts with the antagonistic statements that of all animal substances hæmoglobin is the one which possesses the greatest affinity for oxygen, *or* that substances exist in the animal body which, at least occasionally, have a greater chemical affinity for oxygen than hæmoglobin possesses. If the tissues have a greater affinity for oxygen than hæmoglobin has, how is it that in the blood of animals that have died of asphyxia there is still a considerable quantity, in some cases as much as five volumes per 100 volumes, of oxygen? It is well known that the blood of such animals invariably shows the spectrum of oxyhæmoglobin. The tissues, then, do not use up all the oxygen of the oxyhæmoglobin, and they cannot therefore have a stronger affinity for the oxygen than hæmoglobin has. On the other hand, as the tissues undoubtedly seize hold of the oxygen and rob the hæmoglobin of it, it would appear as if they really had a stronger affinity for the oxygen. There is thus a contradiction according to Fleischl v. Marxow, and it shows that our theories as to the ultimate chemical changes of respiration are not valid.

But if tissues have, as all admit, an affinity for oxygen, and if at the same time we grant, for the sake of argument, that this affinity is not strong enough to dissociate the oxygen from the oxyhæmoglobin, can we conceive any physical action which would, in the first place, perform the work of dissociation, and then present the oxygen to the tissues in a form in which they would readily take it up? Ernst Fleischl v. Marxow holds that he has discovered such an action or agency in the stroke of the heart. He founds his theory on some remarkable experiments, which may be readily repeated with an ordinary tight-fitting hypodermic syringe: 1. Immerse the syringe wholly in water so as to exclude air. Place one finger over the nozzle, draw up the piston for about half the length of the syringe, and then suddenly remove the finger from the nozzle. The water will rush in, and gas will be given off in considerable amount, the water being quite frothy for a short time. This is what one would expect. 2. Then carefully empty the syringe of air and gently draw it half full of water; then place the finger on the nozzle and draw the piston up a little, so as to leave a vacuum above the water. In these circumstances a few large bubbles of gas will come off, but the water will not froth. 3. Empty the syringe thoroughly; fill it half full of water; raise it obliquely, so that the knob at the end of the handle of the piston is above the water; strike the knob sharply with a piece of wood, using the latter as a mallet; then draw the piston up a little, so as to leave a vacuum above the fluid.

He then applies this theory to the phenomena of the circulation and of respiration. Starting with the query why the stroke of the heart should be so sudden and violent, when a much slower and more prolonged rhythmic movement would have been sufficient to keep up the tension in the arterial system on which the movement of the fluid depends, he boldly advances the opinion that it serves for the separation of the gases. The blood is kept in motion by a series of quick, sudden strokes, because, for the taking up of the oxygen by the tissues and the elimination of carbonic acid by the lungs, it is not sufficient that the blood runs steadily through the systemic and pulmonary circulations; and therefore a short, hard stroke is given to it immediately before it enters the lungs and immediately after it has left the lungs. These strokes liberate the gases from a state of solution, and they become mixed with the fluid in a state of fine dispersion. This condition of fine dispersion is favourable for the elimination of the carbonic acid by the lungs, and for the using up of oxygen by the tissues.

Fleischl v. Marxow then proceeds to state that loose chemical combinations may also be dissolved by shocks, the gas passing into a condition of fine molecular dispersion, and that a quick repetition of the shocks prevents a recombination. As examples of such loose combinations, he cites oxyhæmoglobin and the compounds of carbonic acid with the salts of the plasma. It is here, in my opinion, that the theory fails from want of experimental evidence. There is no proof that shocks, such as those of the contraction of the right and left ventricles, can liberate gases from loose chemical combinations such as those with which we have to deal, and it is somewhat strange to point to the explosion of certain compounds excited by strong mechanical shocks or by vibratory impulses.

Enough has been said in this address to show that in the study of respiratory mechanisms we meet with numerous examples of the same wonderful adaptation of organic structure to physical conditions as may be traced in the mechanism of the eye or of the ear. The structure of a lung or of a gill is just as much adapted for the play of the physical laws regulating gases as the retina is tuned to the vibrations of the ether, or as the organ of Corti responds sympathetically to the waves of musical tone.

[2] Die Bedeutung des Herzschlages für die Athmung: eine Neue Theorie der Respiration.

ABRIDGED REPORT OF AN

Address

ON

THE USE OF THE FORCEPS AND ITS IMPROVEMENT,

Delivered at the meeting of the British Medical Association in Glasgow,

BY T. MORE MADDEN, M.D., F.R.C.S. ED.,

PRESIDENT OF THE SECTION.

BY judicious instrumental assistance we may now, in many instances, safely abridge the duration of that formerly often long-protracted period of parturient suffering which, when a student, I have too often seen allowed to continue unrelieved for forty and fifty, and even for eighty, hours and upwards. Moreover, the former appalling frequency of child-destroying operations has been reduced in an exact proportion to the increasing employment of the forceps. Nor have the limits of the utility of this instrument as a substitute for the cephalotribe, craniotomy forceps, craniocast, *et hoc genus omne*, been even yet fully reached. The main reason why any embryotomic instruments are still included in the ordinary obstetric outfit appears to me the fact that most midwifery practitioners do not recognise sufficiently the compressive power of the long forceps, and, moreover, rely exclusively on some one form of forceps, whether the head be above or within the pelvic cavity, and without reference to the kind of mechanical power—tractile, lever, or compressive—that may be specially required in each case. Desirable as it may be to carry as few implements as possible in the obstetric bag, it is nevertheless impossible to combine in any one instrument properties so distinct as those referred to. In operative midwifery there should surely be some definite proportion between the power employed and the resistance to be overcome. Hence it seems about as needless to resort to an instrument of such compressive and lever power as the double-curved long forceps to assist delivery in an ordinary case of delay in the second stage, as it would be to employ a steam-hammer to crack a walnut.

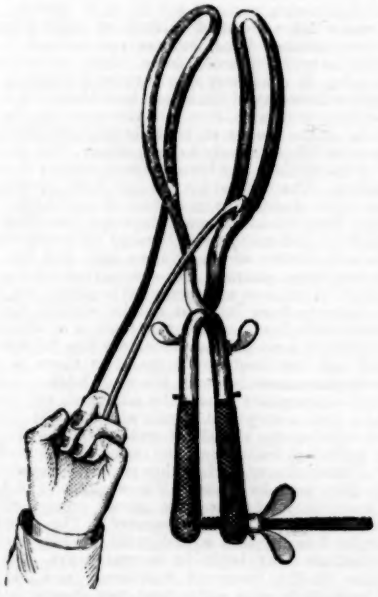
FIG. 1.

I have endeavoured to carry out these views in the two instruments now exhibited, which have been considerably modified and, as I think, improved in the course of experience since I first demonstrated the use of their original models. The first is a short straight traction forceps (Fig. 1),

the blades of which are only six inches in length and are so curved as to fit the fœtal head very exactly, and so widely fenestrated as to allow the scalp to protrude when applied, and thus protect the maternal passage during extraction. This instrument, as may be seen, is very portable, and, locking loosely, is easily applied; and being a really efficient tractor, as I have proved by experience of its use in upwards of three hundred cases, may therefore be employed in nine-tenths of the cases in which any instrumental assistance is required—namely, those in which delay arises from inertia in the second stage of labour.

The second instrument (Fig. 2) is intended only for cases of difficulty from disproportion or pelvic flattening. The blades are therefore of considerable length and strength, and are approximated by a powerful screw, by which the amount of compressive force exercised may be exactly regulated. The affixable traction rods are easily closed or separated by a simple and novel mechanical arrangement. My tractors differ in several respects from any others, and are so made as to be applicable to any forceps, including in their handle a case for hypodermic syringe and discs. This forceps, as will be seen, is not only a tractor and lever, being convertible at will into a short traction forceps by the removal of the compressing handles, but, in its entirety,

FIG. 2.



when these are affixed, is moreover a compressor of great power, with which the fœtal head may be gradually moulded out and compressed within the limits of viability, so as to admit of delivery through pelves, from which a living child could hardly be otherwise extracted. I need hardly add that such an instrument as this latter requires great caution in its use, and should be employed only in the exceptional cases for which it is designed, and as a substitute for embryotomic implements. These instruments are made by Messrs. Corcoran, Stephen's-green, Dublin, who have very successfully carried out my views in their construction.

Recent progress of gynæcology.—The development of this branch of medicine since our Association last met in Scotland has been still more remarkable than that effected in the practice of midwifery during this period. Thus, for example, only a few years ago many of the most frequent forms of endo-uterine and peri-uterine disease were beyond the diagnostic and remedial reach of gynæcologists, then unprovided with those means of rapidly and thoroughly dilating the cervical canal, or with the many other methods of direct investigation, by the aid of which any well-educated practitioner may now recognise and treat endo-uterine, ovarian, tubal, and other intra-peritoneal and pelvic complaints that baffled detection or treatment. (Fig. 3.) Nor in those pre-antiseptic days could have been anticipated the wonderfully successful results since realised from laparotomy operations, and more especially ovariotomy, as well from some still more recent developments of

FIG. 3.

intra-peritoneal surgery in tubal and other diseases, including even peritonitis and cancer of the uterus, the latter a subject which has been recently elucidated in Dr. J. Williams's Harveian Lectures. In the last-named cases, however, it is a debatable question whether we should persevere further with the intra-peritoneal procedure for the removal of the uterus introduced by Freund, in view of the better results obtained from the vaginal method advocated by Dr. Martin of Berlin; and also whether in the latter case the operation should be limited, as recommended by Dr. Williams and Dr. Braithwaite, to the removal of the cancerous portion, and not be extended to the extirpation of the entire uterus. Only within the time referred to has the general correctness of Dr. Grailly Hewitt's views with regard to the importance and treatment of uterine displacements and flexions become commonly accepted. Neither were the symptoms and appropriate treatment of ovarian displacements understood until a more recent period, when attention was directed to them by Dr. Barnes's able paper on this subject in the *American Journal of Obstetrics*, and in a minor degree, perhaps, also by a memoir of mine on the same topic in the Transactions of the Irish Academy of Medicine. Nor is it so long since the bearing of cervical lacerations on pelvic pathology, as first demonstrated by Dr. Emmet of New York, first became recognised in this country. Finally, the diagnosis, importance, and curability of diseases of the uterine appendages, such as hydrosalpinx and pyosalpinx, together with several other of the causes of female suffering and death, were in like manner practically ignored by gynæcologists until within a very recent period.

Treatment of Fallopian tube diseases.—With respect to the tubal diseases, to the operative treatment of which so much attention is now devoted, and which I have elsewhere fully discussed, I shall only here again observe that, whilst recognising the fact that in some instances of pyosalpinx and hydrosalpinx the removal of the diseased uterine appendages affords the only available means of treatment, and fully appreciating the surgical skill by which operations for this purpose have been brought to their present perfection, I have not in my own experience found laparotomy operations as generally necessary in such cases as they are apparently now deemed by others. On the contrary, I am confirmed, by increasing observation, in the belief that in some instances these tubal diseases, more especially in cases of hydrosalpinx, may terminate favourably without any surgical treatment, and, moreover, that in other cases such collections, whether purulent or serous, may be evacuated by cautious aspiration through the vaginal roof. Very recently I had an opportunity of again proving the advantages of this method of treatment in the case of a lady who, after many months of suffering, was sent to me from a distant country to have the affected uterine appendages removed, but whom I succeeded in relieving of her trouble, with the assistance of my friend, Dr. Duke, by aspirating the Fallopian tube, and thus removing about ten drachms of fluid from the distended duct. I would, therefore, still urge the expediency of a fair trial of other less serious methods of treatment before resorting to the extirpation of the uterine appendages in these cases generally.

Operative treatment of uterine tumours.—This topic, I am glad to see, will be brought before you during this meeting by those eminently qualified to speak on the subject; and I trust that in the ensuing discussion some new light may be thrown on the comparative merits of the various intra-peritoneal and vaginal surgical procedures advocated in such cases, as well as on the value of electrolitical treatment. Nor, in this connexion, should the possi-

bility of arresting the growth of these tumours in some instances by appropriate medical treatment, as well as the greater probability of thus effectively checking hæmorrhage so occasioned, more especially by the free administration of ergot and iodide of potassium, to which I have elsewhere called attention, be entirely lost sight of. As to the former or surgical method, I may, however, venture to repeat that in the majority of cases of interstitial and subperitoneal uterine tumours no active treatment whatever appears to me essential, inasmuch as such growths seldom, if ever, destroy life, and in many cases become arrested in their development and quiescent in their symptoms at the menopause, or may even possibly disappear altogether in the course of time. The latter event is, however, too exceptional to have much influence in determining the expediency of surgical treatment, and more especially that by oöphorectomy, which is unquestionably called for in the case of fast-grown fibroids, giving rise to otherwise uncontrollable urgent hæmorrhagic or pressure troubles, particularly when occurring in young patients. With regard to hysterectomy, although exceptional cases may occur in which this procedure is necessitated, the average mortality that has followed its performance is such as to forbid its general employment, as an operation of election, in a disease the average mortality of which when left to nature is so comparatively insignificant. Whilst as to myotomy, in view of its too common results, I can only repeat that it would appear to me a method by which a patient may be effectually removed from a tumour, rather than as an operation by which a tumour can be safely removed from a patient.

Although I have so nearly exhausted the allotted limits of this address, I cannot omit a few words in reference to the latest and most promising of the methods available in the treatment of uterine fibromata—namely, that by electricity. Within the past year and a half I have had occasion to try this method, in some ten instances, in my hospital and private practice; and, so far as the arrest of hæmorrhage is concerned, the result was most satisfactory, the bleeding being thus arrested in six of these cases. But, with regard to the cure of the disease from this treatment, the possibility of which had been demonstrated in the experience of Dr. Apostoli and others, who had employed it on a much larger scale, I can only say that, whilst I have not as yet seen the complete subsidence of the tumour effected in any of the cases so treated by myself, in three of them its apparent bulk became distinctly diminished even after six weeks or two months' treatment of this kind. It should, perhaps, be added that in all these instances I used Dr. Apostoli's original abdominal electrode, the current used being of course monopolar, and acting directly on the growth by the intra-uterine pole, and was obtained from a powerful Leclanché battery of an estimated maximum current strength of 250 milliampères. In the first of my cases I employed the electrolytic negative current, but after a little experience I abandoned this, and in the subsequent trials used only the positive current, which, although non-energetic as a galvano-caustic, is far less liable to give rise to trouble, and from its decided hæmostatic action is more suitable to these cases of large hæmorrhage-producing tumours, in which alone this or any other active treatment seemed to me generally necessary. If, however, the results obtained by Dr. Cutter, and, still more conspicuously, those recorded by Dr. Apostoli, from the employment of electricity—namely, permanent benefit in 95 per cent. of the cases of fibromata thus treated by him—should be confirmed, as I hope may possibly be the case, by the larger experience of those who are here about to discuss this disease, then we should have good reason to congratulate ourselves on having at last arrived within sight of the long-sought-for safe and effectual curative treatment of uterine tumours.

EDINBURGH VOLUNTEER MEDICAL STAFF CORPS.—On the 10th inst. forty-two members of the Edinburgh Volunteer Medical Staff Corps, under the command of Dr. Cathcart, left the Waverley Station by the 10.20 London train *en route* for Aldershot, the headquarters of the corps, where they are to undergo ten days' training. Hitherto the corps has been represented at the Aldershot training by deputation merely; but on the present occasion the corps goes as a corps, Government paying the railway fares of the men, finding them in victuals during training, and allowing 10*s.* per man for expenses in addition.

WHAT IS THE CAUSE OF CANCEROUS INFECTIVITY?

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IN consequence of the editorial comments with which my previous paper, entitled "What is Cancer?" was favoured, I find myself very properly challenged to answer the important question which forms the title of the present communication. I do so with the full knowledge that failure in this implies the rejection of my theory as a working hypothesis. The subject, however, is one involving a more profound knowledge of what life is than we as yet possess, and still the answer depends upon this very point. On this account especially I ask the kind indulgence of the profession.

Before considering the question "What is the cause of cancerous infectivity," it is necessary for the reader to realise that vitality is comparative. We are apt to look upon a thing which is alive as simply alive, "and there is an end of it"; whereas one thing may be more alive than another. Life is simply one of the forces of nature. It is the only one which we cannot initiate or produce by conversion from another force, but we can convert it into other forces, as into mechanical force. Just as mechanical force, or light, or electricity may vary in amount, so may the vitality or intensity of life in one individual of a species be greater than that in another. In the same way the component cells of the tissues of his body may and do vary in their degree of life relatively to each other. For instance, the skin of the ankle is in a lower state of vitality than that of the thorax. The cells which are just being produced in the lowest layer of skin are in a state of active life; those which have been produced some days are less alive; and those which are just ready to be brushed off the surface are less alive still, if alive at all. Take a nail, and the same thing is seen more plainly. No one will admit that the morsel which he removes as superfluous is alive; yet, if not, at what distance from the root did its vitality cease—at three rows of cells from its root, or at four, or at what exact distance? There is no distinct boundary line between the living nail and the dead any more than there is under ordinary circumstances between life and death. Let this doctrine of comparative vitality be admitted, and we may then take a further step and admit as a question for consideration whether the vitality of certain cells of the body, such as epithelial cells, may be raised by an excessive amount of nourishment or by other peculiar circumstances in which they may be placed. The arguments in favour of the probability of this were given pretty fully in my previous paper, "What is cancer?" The hypothesis was brought forward that a malignant growth springing from epithelium may begin in several ways, but that penetration of the basement membrane and lodgment of cells beneath it, with subsequent non-encapsulation of the growth, are essential factors in all. In one set of cases the proliferation of cells upon a free surface is the first step, and the penetration is the effect of this proliferation; in the other the penetration is the first step, and the proliferation is the effect. In either case, however, the degree or intensity of life of the invading cells is increased. It is especially so when over-nourishment is the prime cause, whether from an excessive meat diet, or whether from non-use of even a proper amount of daily food, owing to an inactive life. When, however, from whatever cause, as a first step, epithelial cells become lodged in the softer tissues below the basement membrane, their supply of nourishment will be considerably increased. These cells, then, naturally hardy, somewhat incompressible, growing with great rapidity, and unable to die by abrasion, as is usual with epithelium cells, have their "tension" or intensity of life increased. It is now but a step to infection of the neighbouring lymphatic glands. The simple vection of the cells along the lymphatics I need not advance arguments in favour of: the possibility, probability, nay certainty, of this will be admitted. The question is, What happens when three or four of these cells arrive in a lymphatic gland? They then find themselves in a machine accustomed to deal

with effete and barely alive matter. Could we measure the degrees of life, we might imagine that of the gland cells to be 10 and that of the effete matter or lymph 2, but of the invading epithelial cells 15. Their vitality, therefore, overpowers that of the gland cells, and, as in the original locality where the parent growth took place, the invaders win. The success, therefore, of the invading epithelium cells is simply a question of *comparative* vitality. In a case of vection of cancer cells such as we are considering, the odds in favour of the invaders is still further increased by the tissues in general of the patient being in a lower state of vitality than in health. He probably is in a high state of chemical nutrition, but is probably in a low state as regards the quantity or the tension of his vital fluid, from anxiety and the wear and tear and the disappointments of life. We must remember that we do not yet understand life. It has not been studied, and it cannot be, as electricity has been. When electricity was first known, no person could have guessed or supposed that there would turn out to be such a quality as tension as opposed to quantity, or what we call positive and negative states. It may yet be discovered that there are qualities of life as well as quantities. It is evident that the life in the cancer cell is superior in some way, in quality, in quantity, in tension, in intensity, or in rapidity of formation, to the life in the cells of the gland to which it is carried; for it destroys them, grows faster, and crowds them out of their natural and proper place. I think, then, that a higher or more intense degree of life is the secret of what is called the infectivity of cancer cells—a *comparative* intensity, assisted by a lower tension or quantity of life in the part invaded. Experiments made upon this point should consist of transplantation of epithelium from a young and vigorous individual to the gland or tissues of an older and feebler individual of the same species. It is, I see, stated in the leading article of THE LANCET mentioned that the transplantation of living epithelium by embolism actually has been known to result in the production of a new growth capable of indefinite increase. The writer adds that he does not as yet admit this to be a settled and ascertained fact in the case of normal epithelium. We are, however, dealing with epithelium the nutrition of which has been stimulated, and which is not consequently in precisely a normal condition.

How accurately in nature is the food adapted to the wants of the tissues of the animal or plant consuming it. How is it that the spores of a mushroom must pass through the intestines of a horse, whilst those of a cow will not do? They both feed in the same field: how small must be the difference; yet it is one vital to the spores. Consider the effect of the peculiar food given by bees to a worker grub which they wish to develop into a queen. The food is the cause; the increased life is the effect. How is it that the tortoiseshell butterfly lays her eggs on a nettle, whilst she herself has drawn her food from flowers? How is it that it is necessary for the life of a hair-worm that its larva should have lodged in the bodies of two distinct individuals, a gnat and a fish? The least divergence from the proper nourishment is fatal. Actual changes in the texture of the flesh of several fishes (salmon, trout, &c.) are occasioned by change of food. If water cultures show the lowering effect of depriving seedlings of certain constituents of their normal food, why may not an increase of these constituents cause an increase of vitality and growth? I believe no bacterium will ever be discovered as the cause of cancer. Is not an epithelium cell, from its very peculiarities, to all intents and purposes a bacterium itself when out of its proper place and lodged amongst other tissues, and this especially when the first step of all has been over-nourishment by excessive and improper food? It does not happen to be long, or to be round, or to resemble in appearance in any way a bacterium or a coccus, but it is under these circumstances practically one.

About a year ago, having just removed a uterus entire, for cancer of its body, and looking into the abdominal cavity from the small space where the womb had been, I could see the peritoneum of a coil of bowel freckled with minute white spots from cancer cells, which had taken root, and were growing; yet the peritoneal basement membrane had not then been penetrated. I once added a few drops of nitric acid to the urine of an elderly woman suffering from merely a bad feverish cold, and was startled to see the deep blue of pure iodine appear. The urine held in solution a large amount of iodide of potassium. She had repeatedly and for years taken this drug for rheumatism, but assured me she had had absolutely none for two years. This iodide must therefore have been held or stored by the cells of (probably) the liver. Why, then, had it thus suddenly been thrown off? Because the electric state of the blood and of the secretions made from it had become reversed by the febrile state. The blood and the secretions, the skin and the mucous membranes, are well known to be in opposite electric conditions. I think it not improbable that when an intensely vital cell comes into contact with one of lower vitality, as in the case of the cells in the peritoneum which we are considering, they will be in opposite electric states and adhere. This is, however, merely a surmise, and not essential to the explanation; because it is quite reasonable to suppose that, apart from any aid to anchorage like the electric one suggested, when a cell with its life in a high state of tension rests and remains for a time upon a spot in the peritoneum, it will adhere and draw nourishment. Proliferation, which is merely another word for intense life and rapid but ill-regulated multiplication, then takes place, and a colony is established. It has previously been shown how penetration of a basement membrane may take place by cells growing exuberantly upon a free surface. The same thing will occur when the proliferation has thus been established on the surface of the peritoneum.

If my view, therefore, is correct, the whole question of infectivity hinges upon the following points:—1. The certain fact of life being comparative in amount, a varying quantity in different tissues and cells of the same individual. 2. The probability that, just as decreased nourishment causes decreased vitality, so increased nourishment will cause increased vitality or life fluid in cells. 3. The probability that, as the cells of various tissues require different and varying forms of nourishment, so an increase in the food of one especial ingredient may cause an increase in the life fluid of one especial set of cells. 4. The probability that, when cells of different degrees of life compete for space, those of a higher grade will displace those of a lower grade, other circumstances being equal. 5. In the case of epithelium cells thus competing, their inherent peculiarities assist this competition in a remarkable degree. The truth or not of these propositions of course admits of argument and dispute, but they will, I think, be admitted by most men as reasonable and worthy of consideration. This question of cancer is the great question of the day in our profession; it is the dreaded disease, the very thought of which causes horror, and the actual existence of which is worse than death itself. To the elucidation of this question we are all called to devote our thoughts and energies.

Leeds.

THE USE OF LIVING BONE AS A BOND OF UNION AFTER EXCISION OF BONES AND JOINTS.

BY DR. J. WILLIAM WHITE,

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THE various opinions which have from time to time been held in reference to the union and repair of bone have until recently undergone but little change in their essential elements. The ancients believed[1] that callus was formed by the extravasation of a gelatinous fluid, which gradually acquired consistence, and united the fragments in the same manner as a cabinet-maker would glue together two pieces of wood. Duhamel[2] regarded the periosteum as the "organ of ossification," and thought that after a fracture the periosteum of the two fragments first grew together and then swelled, forming a circular elevation around the line of fracture. This thickened membrane he thought was soon converted, first into a gelatinous and then into a cartilaginous substance, in which vessels developed and different points of ossification arose. Haller and Dethleef, after a long series of experiments, disputed this view, and concluded that

[1] Samuel D. Gross, M.D.: Anatomy, Physiology, and Diseases of the Bones and Joints. 1830.

[2] Mémoires de l'Académie Royale des Sciences. Paris, 1741.

the callus was formed by the gelatinous juice exuding from the extremities of the fractured bone, especially from the medullary texture, and diffused all about the fracture. John Hunter referred the formation of callus to the organisation of the blood which is effused around the ends of the fragments; Fougeroux, to the extravasation of lymph which became organised by inspissation; Larrey, to the action of the vessels which are distributed through the substance of the osseous tissue. Howship, after a number of experiments, concluded that the theory of Hunter was correct, and that the blood which is effused immediately after the occurrence of a fracture becomes, under all circumstances, the medium in which the ossific process is first established. Bordenave believed that, instead of the callus arising from the periosteum or from the extravasation of lymph, it was due to a process analogous to that which nature employs for the union of the soft parts. Dupuytren taught in 1819 the doctrine of the union of fractures by means of provisional and permanent callus largely derived from the periosteum.[2] Many years later Wagner[3] taught that the periosteum plays the principal part in the repair of the division of bone caused by resection, and to such an extent that it is sufficient of itself to form any bony material which may be needed to replace the bone removed. In the cranial bones it is probable that the dura mater takes the part of the periosteum. He adds that reproduction of bone, although only in a slight degree, may take place even without periosteum from the medullary cavity or the diploë, or from the soft parts which surround the bones. He says that the substance of the bone itself does not appear to contribute to the reproduction of bone, and that Klencke is the only author who expresses an opposite view. Since then the investigations of Paget, Klein, Billroth, Virchow, Cornil, and others have taught that new bone builds itself up out of most different materials, and that the theories regarding callus, which endeavoured to show that it was developed in but one way or out of but one substance—i.e., extravasated blood, periosteum, exuded fluids, medullary tissue, &c.,—each had a grain of truth, as all of those tissues occasionally take part in the repair of bone. The general belief still was, however, that both as to the life and the growth of bone, the periosteum was almost or quite essential, and it remained for Mr. Macewen of Glasgow to demonstrate, as I believe he has done by a series of well-considered observations and experiments, the relative unimportance of the periosteal membrane and the possibility of ossification occurring around completely detached and isolated bony fragments. He has shown that, while on the one hand the periosteum is not the petent osteogenic factor which many thought it to be, on the other hand the soft tissues enclosed in the osseous tissue play the chief *rôle* in the development and reproduction of bone. I have had the pleasure of examining with him the case of regeneration of the humerus which he has recorded, and it certainly goes far to establish the truth of the above statement. Among the other propositions which he formulates[5] is the following most important one: "Not only do detached portions of bone deprived of their periosteum live when reimplanted in their original position, but such portions are capable of living after transplantation. Parts of deeper layers of bone which had no periosteal connexion have been transplanted and lived and grown." This statement is supported by both observation and experiment, and rests upon the fact that bone is produced and regenerated by proliferation of osteoblasts, and both its development and reproduction can take place independently of the medulla and periosteum. So far from regarding the periosteum as the structure which can alone secure or reproduce bone, the surgeon who accepts these teachings will not trust it to regenerate bone unless it has adherent portions of sound osseous tissue, from which alone by the process of proliferation can osseous regeneration take place. In January, 1887, Dr. Bernays of St. Louis reported[6] some experiments in which by the use of bone sawdust of various degrees of fineness he produced bone in different positions, in the soft parts of the extremities, the abdomen, and back of two dogs. These experiments have not been confirmed, and Dr. Bernays records the fact that all his attempts to graft large pieces of bone in animals were failures, the pieces simply becoming surrounded by "periosteal bone tissue" and remaining as foreign bodies, which subsequently had to be extracted.

[3] Gross, ibid. Cooper's Surgical Dictionary (London, 1825).
[4] On the Process of Repair after Resection and Extirpation of Bones. Sydenham Society, London, 1859.
[5] Annals of Surgery, vol. vi., 1887. [6] Med. Brief, vol. xv., p. 48.

The use of some method which should, in any case of operation on ununited fracture, or in excisions of joints or bones, meet the two indications of complete fixation of the fragments and the supply of a healthy stimulus to bone reproduction, has long been recognised by the profession. Dieffenbach's ivory pegs, the wire sutures of Flaubert, the seton of Valentine Mott, and the steel pins employed in the treatment of ununited fractures, are examples of various attempts in this direction, which have had varying degrees of success. In 1878 Dr. Alexander Patterson of Glasgow reported[7] a case of ununited fracture of both bones of the forearm, in the treatment of which a portion of dog's bone was used as a means of procuring union. The ends of the fractured radius were separated about three-quarters of an inch, and in this interval was placed a corresponding section of the humerus of a dog. It was held in place by a wire passed through holes drilled through the ends of the bone, and then through other corresponding holes in the fragments of the radius. Its periosteum had been first reflected for a short distance, and was then brought down over the line of junction of the bones. The ulna was simply wired together, and later was found firmly united; but at the end of six weeks union was not complete in the radius, and the wound remained open for twelve months. At the end of that time the dog's bone, reduced to about half its size, came away, after which the wound healed completely. Without the knowledge of this unsuccessful case of Mr. Patterson, I recently, in a case of complete excision of the knee joint, employed a similar portion of dog's bone for fixation of the femur and tibia. The case was one of extensive tubercular synovial disease, with softening and disappearance of the cartilages, and with caries of the head of the tibia and the condyles of the femur. At the proper stage in the operation one of the metacarpal bones of a medium sized dog was removed with thorough antiseptic precautions, and brought to me wrapped in a warm carbolised towel. The piece of bone measured about three inches in length. A small cavity, just large enough to receive the end of the bone, was excavated in the lower extremity of the femur, and a corresponding one in the upper end of the tibia. The bone was then fitted tightly in place, and held the parts so firmly in position that the whole limb could be supported by the heel without displacement. It was dressed and placed in a bracketed wire splint. The subsequent course of the case was as follows. After a week or ten days, during which there was no elevation of temperature, there was a sudden rise to 102·5°. I found that there was an accumulation of sero-purulent fluid beneath the upper flap; on evacuation, this was found to be quite aseptic, but it continued to discharge for several weeks longer, gradually diminishing in quantity, but retaining a gelatinous consistence, possibly due to admixture with synovial secretion. The temperature also remained slightly above normal. The patient's complexion and general appearance, and a slight cough, gave rise to the suspicion of pulmonary tubercle, though no physical signs were then discoverable. The limb remained in good position, the mechanical effect of the bone peg having been all that could be desired. There was no evidence that it was acting as a foreign body or in any way interfering with the process of repair. On the other hand, there was no marked advantage to be observed from its use, many cases of excision of the knee, in my experience, having done at least equally well under the use of the bracketed wire splint, and without other means of fixation having been used. When I last saw the patient (in the middle of June), about six weeks after the operation, he was apparently nearly well, and was likely to have a good limb. The case cannot be said to demonstrate anything conclusively as to the use of living bone in these cases, beyond the fact that such portions of dogs' bones can be made to serve the same mechanical purpose as ivory or steel pegs, and with no greater risk of acting as foreign or irritating substances. Many similar observations will be required to show whether or not they aid or hasten osteogenesis.

Philadelphia.

[7] THE LANCET, vol. ii., 1878.

THE BRITISH ASSOCIATION.—The forthcoming meeting of the British Association will be held at Bath, at the Drill Hall. On Sept. 5th Sir H. E. Roscoe will resign the chair, which will then be taken by the president-elect, Sir Frederick Bramwell, who will deliver an address.

THE APPLICATION OF THE THEORY OF EVOLUTION TO PATHOLOGY.

BY ALBERT GRESSWELL, M.B., B.A. OXON., &c.

(*Continued from p. 307.*)

NOW, the next step in pathological products which we have to consider is one in which the growth and multiplication of cells, instead of being merely transitory phenomena, establish themselves more or less persistently in a permanent form. It may briefly and unhesitatingly be said that all new formations, as instances of which the enchondromata may be here mentioned, are markedly characterised by the preponderance of cellular elements modified in various ways and degrees. They may fibrillate, and may even become calcified, but very rarely, if ever, do they develop into the highest forms of tissue, the muscular and nervous. Of course this is what we might expect, since it is clear that the tissues of most important specialisation must necessarily be produced, so to say, with greatest difficulty. Speaking generally, it may be said that all the tissues of all organisms, both low and high, have been proved to be so much like the modified results of primitive cells, more or less closely blended together, that we may suppose them in all cases to have arisen from cells in the first instance. We have now, however, to add this further fact above mentioned—viz., that those growths which are spoken of in pathological language as new formations are also indubitably traceable to the growth and proliferation of the same units, cells, or at any rate cytodes. Together with this we must also bear in mind the additional statement above made—viz., that the newly-formed cells may be modified in various ways and degrees, or indeed, on the other hand, so little changed as to be scarcely distinguishable from those parent cells which originally gave them birth. In short, new formations clearly point to a remote ancestral condition when the primary importance of cells as units, distinct and not combined, was very much greater than it can be in higher organisms, in which each constituent cell is most intimately dependent upon the activities of the other cellular units with which it is so intimately combined. Among the different kinds of new formations the enchondromata most pointedly illustrate the reversional characters of which I am speaking.

Enchondroma myxomatodes exhibits characters like those of the notochord of the vertebrata. The cells of some enchondromata are stellate, their processes uniting to form a network, and in the Selachii similar cells are present. Again, these enchondromata are most usually found in the limbs, and especially in the distal parts of the limbs. Now, the primary condition of the vertebrate limb is seen in the Selachii, among which fishes the limb is composed of a great number of cartilaginous rods, which are arranged definitely, and increase in number towards the distal extremity of the pro-pterygium, the meso-pterygium, and the meta-pterygium. It certainly appears possible that the enchondromata situated in homologous parts may, so to say, point backwards to the ancestral condition of the limb. Corroboration of this statement is seen in the frequency with which cartilaginous bodies develop in connexion with certain joints of the limbs in man and animals. These cartilaginous nodules may be either single or multiple, and some may be as large as a small apple. Cruveilhier figures several round cartilaginous bodies as occurring in an elbow joint, and it has also been observed that cartilage cells have been found in the synovial tufts of some joints. Again, new formations of capillary vessels are, as a rule, congenital, and they are also much more generally met with in the skin of the head and neck than elsewhere. These two facts may suggest the possibility that they are in some degree homologous with the vessels which develop about the epiblastic involutions lining the visceral arches of the lower vertebrata. In support of this idea, it may be remarked that Dr. D. A. Gresswell recently observed in a patient a nævus which extended in a snake-like manner down the right side of the neck. The nævus was distinctly raised, and it tapered towards its extremity, and passed down the external auditory meatus for some distance.

Having now considered some of the indications among some abnormal structural phenomena of higher animals which remind us of remote ancestral conditions, we now, in pursuance of the same line of argument, propose to consider some special facts connected with the early division of the cells, which make up the developing embryo of a higher animal into the three separate divisions known as the embryonic layers. The lowest living beings consist simply of undifferentiated protoplasm, almost identical throughout both in regard to form and in regard to functional capacity. The next stage in animal life is that which is represented by the diploblastica, in which there are two distinct layers of protoplasmic units, either of which is in some measure capable of discharging the function of the other. A third stage is that displayed by the triploblastica, in which each layer is largely independent, both in regard to structure and in regard to function, and is by no means capable of taking on the functions of another layer. Similarly, stages comparable to these are passed through in the early development of the embryo of any higher animal, the three layers being known as the epiblast, the mesoblast, and the hypoblast. Now, the resemblance which attaches itself to those parts of higher animals which have been developed from this epiblast is seen in many ways. For instance, some mammals develop hair within the mouth, and the majority of the members of this class of animals are provided with a few hairs within the nose, and also within the external auditory meatus of the ear, and some also on the conjunctiva of the eye. Moreover, it is well known that the Selachii show in the clearest manner steps of transition between scales on the skin, on the one hand, and teeth in the mouth, on the other, and it is to be remarked that both scales and teeth are limited to regions which have developed from the epiblast. Again, the occurrence of hair all over the body, with the exception of the palms and soles—an exception which is what we should expect on account of the friction to which these parts are constantly subjected—has been noted both in man and in woman.

The rashes of the specific fevers, too, sometimes illustrate the similar origin of the parts which they affect. For instance, the rash of scarlet fever may occur in any part of the skin and even on the face, though it may be only seen there with difficulty owing to the two facts, firstly, that the skin of the face is naturally full of blood, and secondly, that the scarlatinal rash is much more uniform than most rashes, and hence not so easily observed. The rash occurs also on the scalp, on the oral and faucial mucous membranes, probably also on the nasal mucous membrane, as is evidenced by the constant thick stream of discharge so frequently seen flowing from both nostrils in infants and children, also on the conjunctiva, in the external auditory meatus of the ear, probably also in the middle ear and Eustachian tube. These latter points lead us to the recollection that the mucous membranes of the fauces, Eustachian tube, middle ear, and external ear are derived from the lining of one cleft—the tympano-Eustachian cleft, the representative of the permanently open spiracle of the Selachii. Similar observations are to be made in regard to the two diseases, measles and small-pox. Again, in reference to the drugs belladonna and jaborandi, we know that belladonna causes dryness of all parts of the skin, including the mammary involution, and also of all parts of the mouth and throat, while jaborandi does the reverse of this. Similarly, a sufferer from rheumatic fever has a moist tongue and an especially moist skin, and a phthisical patient also generally has a moist tongue and skin. Again, it seems very possible that the comparative frequency of hair-bearing cysts in the brain and in the ovaries points to the original development of those structures.

In turning now to a consideration of the erect posture, we find many points of supreme interest and value bearing upon our topic. Before it can stand erect, the newly born babe is only capable of crawling as a means of progression, and for some time after its birth the relation of its head and legs to its trunk is similar to that presented by a lower animal. At a comparatively early age the child begins to bear with all its weight upon its legs, and this fact serves in some degree to explain the greater frequency of knock-knee and bowed leg in human beings as compared with animals. Among vertebrates the erect posture is maintained in the more highly differentiated, and it may be supposed that remote progenitors of animals which are now erect were prone. It is clear that the lower surface of a prone animal corresponds to the front surface of an erect one. The

ventral or abdominal surface, which in a prone animal is in relation with the earth, comes to be in the case of an erect animal in relation with space. Herein a great alteration in the supply and loss of heat is involved. To the prone the earth affords a protection from excessive radiation. This is illustrated by the fact that rabbits, when placed in the supine position, die of refrigeration.

Again, it is manifest that the abdominal contents of an erect animal tend, in case their supporting tissues should yield, to press upon the pelvis and inguinal structures, while it is equally clear that in prone animals the pressure is directed downwards and also perhaps forwards, in accordance with the slope of the ventral wall of the abdomen. Hence arises the fact that femoral, scrotal, and obturator herniæ are rare in animals as compared with man, while diaphragmatic and umbilical herniæ are equally common, if not even more usual. The rudimentary condition of those vertebræ coming after those called sacral which support the pelvic girdle has apparently special reference to the erect posture. There is no doubt that a bulky tail, or even a small one, could not but embarrass the action of the legs of an erect animal. Many arboreal animals assume the erect posture, and yet possess tails which they use as prehensile organs. The anthropoid apes, moreover, have the tail only poorly developed. Again, the shape of the rudimentary tail changes as prone animals become erect, in such a manner that it serves in some degree to support the pelvic structures. In the hind limbs of quadrupeds the circulation of the blood is feebler than in the fore limbs. Possibly the erect posture in man may still further impede the circulation of blood in the lower limbs. Hence we may explain the frequency with which gouty deposition in man first occurs where the circulation is most sluggish. Furthermore, the erect posture affords a freer play to the movements of the four extremities. The late Dr. Rolleston used to teach that this additional freedom had removed the necessity of the continued development of the panniculus carnosus, which muscle is useful in ridding the skin of some parasites, also in certain defensive and offensive operations, as, for instance, in the erection of the spines of the diodon, the scales of serpents and of the manis, the quills of the porcupine, and the bristles of the hedgehog. Human beings, however, in virtue of their erect posture, possess so much more freedom of movement of the four extremities than prone animals, that this muscle atrophies as a result of falling out of use. The fact that man has remnants of this muscle in the platysma myoides, and, according to Henle, in several muscles of the head, is to be considered in relation with the fact that hairs still flourish on the head, the face, and upper part of the neck. Birds, however, are erect, and yet some have a remarkably well-developed panniculus carnosus. An albatross was recently found by Dr. D. Astley Gresswell to have large tendons inserted into its feathers and skin. It is, however, very clear that in birds the fore limbs are specialised for flight, their freedom of movement in other directions being consequently correspondingly curtailed.

Man is right-handed, as indeed also are quadrupeds, though to a far less extent. In human beings the fore limbs, being much freer than in animals, have acquired far greater independence of action. The fact that the right limbs have taken on the more complex tasks is attributed to the left side of the brain receiving a more direct supply of blood, and this view is strengthened by noting the frequency with which embolism occurs on the left side of the brain as compared with its less general occurrence on the right side; just as, similarly, the greater frequency with which embolism manifests itself in the left kidney as compared with the right is attributable to the more direct course of the blood to the former. Again, the functions of an organism, or of the aggregate of organisms, no less than the structures of an organism, or of the whole aggregate of organisms, are most intimately connected one with another. Indeed, the mutual interdependence of functions is almost universally admitted. The assertion that the various processes of change going on in a higher animal—that is, its functions, have been evolved in association with one another—has been amply supported both inductively and deductively. The phrase "associated functions," like the corresponding idea of "correlated structures," expresses a great and undeniable truth. A canary when building in captivity may be seen to fly about its cage with the straw before placing it in position—that is to say, it unnecessarily attempts to do under altered circumstances things which canaries, when making their nests under the ordinary conditions of nature, are actually compelled to do. Though, then, in new circumstances both animals and man acquire new habits, still in many cases relics of the old ones remain. Those functions which will persist for the longest time are those which have by any means whatsoever been most strongly impressed upon the organism or upon its progenitors.

If we examine carefully all the numerous processes undergone by animals, we shall see that they may roughly be divided into two sets—viz., those of *work* and those of *rest*. It is quite true that these two sets are not entirely distinct, but rather they are intimately connected together somewhat in a similar manner to that which links together heat and cold, or light and darkness. We shall find it convenient to speak of one group of functions as the associates of work, and of the other as "the associates of rest"; and we shall hope to show that when some of the associates of work are decisively manifested there will be a tendency for others to appear; and similarly in the case of the phenomena of rest these, too, work to a great extent in association with one another. The one great aggregate of processes is evoked when the organism must obtain food, effect its escape from pursuers or fight an opponent, when, in short, it must exert itself to the utmost in measures of self-preservation of a direct and active character. The other great division of functions is exemplified when these objects have been met, when the end has been achieved for the time being, or when the mechanism of activity concerned in work needs rehabilitation and repair. These two well-marked associations of work and rest, developed in the healthy animal for the ordinary purposes of life, make their appearance also in the field of disease. When thus manifested, certain correlated processes of the one kind or of the other may in some cases work for good. Probably they may more frequently be productive of harm; while in some, unless they be checked, they may actually kill. The organic functions which make up the state of excitement are in reality processes of work, of activity. The effects of irritation however produced, those of pain, of joy, of fear, of any impulse to movement of whatever kind, are in some degree similar one to another. In disease we find phenomena corresponding in some measure with those of the chase and the fight, with the defensive measures adopted in fear and fright, and so on; and even death may result from excessive and unequilibrated action of the vital mechanism, as in extreme fear and intense pain. While certain associated processes may have been, and may still be, of the greatest benefit under certain conditions, they may none the less work great harm, so far as the individual is concerned, under certain other allied conditions. Thus a reaction of inestimable value under certain conditions may be one which under other allied conditions can not only serve no useful purpose, so far as we can see, but may even impede or retard recovery to a very considerable extent, and so bring about even a fatal issue.

Turning now to another but an allied point of view, we remark that the phenomena which constitute day, like those which make up night, have likewise in each case been coexistent for immense periods of time. Moreover, it is to be remarked that the associates of work have alternated with the associates of rest to a large extent in the same way as day has alternated with night, and on a larger scale to some extent as summer with winter. Consequently we shall not be surprised to find later on that the rhythm of surrounding conditions has left its impress on the organic rhythm. An animal at work has an acceleration of pulse and of respirations, excitement, increase of perspiration and of fæcal discharge, and augmentation of metabolism and of the temperature of the body. Now there certainly is evidence to show that, if some of these be aroused, there is a tendency for others or of all to be also aroused. If the temperature of an animal be artificially raised, the pulse and the respirations are accelerated, and the cutaneous glands are more active. The converse is the case if the temperature be reduced. A muscle, while contracting, rises in temperature, and there seems to be a very considerable total increase of heat in the body during action. Again, together with action, with excitement, and with alarm, provided it be not too great, there is also associated an acceleration of the pulse. The ready response of the temperature of a child, or of a patient convalescing from febrile conditions to changed circumstances, is well known.

Again, the action of some chemical compounds serves to

illustrate the association of vital processes above mentioned. For instance, the administration of nicotine produces acceleration of the heart's action, perspiration, and diarrhœa; while morphine, on the other hand, causes a slowing of the pulse, a dry skin, constipation, and sleep. It may very readily be seen that the associates of rest are the counterparts of those of work; but we must not forget that a state of rest may vary from that of simple repose to the pronounced rest of sleep or hibernation. Now, it is well known that if a man or an animal abstains from taking physical exercise constipation very often results, and it is also to be noted that if one or more of the associates of work are kept in action sleep is not to be obtained. For example, when too hot or greatly excited from any cause we cannot sleep. As we have pointed out above, there is apparently an association of certain vital processes which are concerned in action, so that if one is strongly aroused, or, *a fortiori*, if more than one is evolved, the others are generally also induced. There is also another association of vital processes which we call rest; and if some of these are exhibited, then in a general way the others will also be more or less strongly apparent. If we compare these two, work and rest, together, we meet with many striking points. Further, if muscles are freely exercised they may become hypertrophied, while if excessive rest be allowed they become atrophied. This same rule applies also to other tissues and organs. The two states, rest and work, ought to be alternated with each other. It is most important that this rhythm of waste and repair should be attended to, for otherwise the muscle, the limb, or the organism, as the case may be, suffers when waste exceeds repair.

Again, if we compare together day and night, we find that the daytime is characterised by the presence of sunlight and of sun-heat, and that in the daytime there have been manifested by animals for untold ages the associates of work. The pulse and respirations are more frequent in the daytime, and there is a separation of a greater amount of carbonic acid gas and urea. The body temperature also is higher. It has been proved by Dr. D. A. Gresswell that light stimulates the action of the heart, and that tropical heat is accompanied by rise of the temperature of the body. The factors, then, which constitute day, external or inorganic and internal or organic, are each and all concerned in adding to the activity of vital processes. The external factors (light and heat), in reference to the internal, stand of course in the relation of cause to effect, not only directly, but also indirectly, since they afford opportunities for working which are not present at night. In short, a rhythm has thus been established in organisms in regard to day and night, and this rhythm is, moreover, still kept up, even when some of the factors concerned in the causation of it are altered, just as also the variations in the frequency of the pulse which have reference to meal-times persist, even if we pass the whole day without food. For example, if we commence working by night and resting during the day, it is some time before we obtain a reversal of the temperature curve, and the reversal is probably never quite complete. If, on the other hand, we proceed gradually from one meridian to the antipodal meridian, we gradually change all the associated factors of what was our day for those of night, and under these circumstances the daily curve of body temperature persists, although there are facts which tend to show that the older-established rhythm does not yield with the very best grace. Moreover, in pyrexial conditions the body temperature tends to rise and to fall at the same times as it does in health. Again, the fact that pain is so generally more intense by night than it is during the day, and the greater likelihood of a febrile patient being restless and afterwards delirious by night than by day, though the temperature be no higher, may be compared with the fact that in health, when hot during the night, we cannot sleep, while we may, even when hotter, be able to sleep by day. Day being the time for action, the febrile temperature is, therefore, more easily borne at that time than it is during the night. The division of time into months has reference to the phases of the moon. It has been suggested by Darwin that menstruation points to an ancestral time when spring tides brought an extra supply of food. The fact that delivery occurs usually at the time of a menstrual epoch and the times at which antepartum hæmorrhages occur may have the same explanation.

(To be concluded.)

THE COMPARATIVE THERAPEUTICS OF ANTIPYRIN AND ANTIFEBRIN.

By ROBERT PARK, M.D.,
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THE generalisation which I ventured to make at the conclusion of the report of a case published in THE LANCET for May 12th of this year, to the effect that antipyrin would be found best adapted for the treatment of sthenic cases and antifebrin for asthenic, has been criticised by Dr. Hamilton of Hawick, in your issue of June 2nd, his experience having led him to form an opposite opinion. It is not surprising that opinions and conclusions drawn from the never exactly comparable data of clinical observation should be widely divergent, when in the more exact realms of morbid and experimental pathology we read and hear of exactly opposite conclusions being arrived at by equally competent observers from a consideration of exactly similar data. Thus, as cognate to our subject, I find, on referring to a paper in the *International Journal of the Medical Sciences* for April, 1886, p. 397, which I studied very carefully at the time of publication, Beyer writes that Cappola found that "toxic doses of antipyrin did not diminish blood pressure, the heart continued to beat with great energy, and was finally arrested in systole."[1] Filehne found the heart, on the contrary, after death, "arrested in diastole." Ardiun also states that "it kills by heart paralysis." Beyer's own conclusions, from experiments which appear to have been carefully planned and crucial, are that "antipyrin, though largely dilating the veins, increases the power of contraction of both auricles and ventricles, and has no injurious influence upon the blood nor the muscular tissues, and therefore possesses, indeed, all the good qualities of a perfect antipyretic."

Now my clinical experience leads me entirely to endorse Beyer's views as to the physiological action of antipyrin; but, in practice, it is often found that the therapeutics of a drug is varied by a great number of conditions with which the physiologist has not to contend. I need not enumerate these, as they occur to the mind of every practitioner. Suffice it to recall here the fact that there are certain cases, and notably those of tuberculosis, where antipyrin fails to bring down the temperature, and where antifebrin is likewise powerless in this respect, though it may possibly prevent hyperpyrexia. The explanation is not to be found in dosage or mode of administration, but either in the patient or the disease, or the one modified by the other. Idiosyncrasy, no doubt, counts for something—that is, some of the recorded phenomena following slight doses of antipyrin can only be explained, on account of their anomalous character, by reference to some anomalous individual characteristic.

Albeit I think we possess some clinical data whereon we can rest secure in saying at least that the question of whether the patient is sthenic or asthenic has a most important influence. To begin with, I may be permitted to refer to the case reported as showing the fact that antipyrin can be given continuously in full doses frequently in a sthenic case without harm, but with benefit. On the other hand, in the *Practitioner*, No. 238, Mr. Bokenham of St. Bartholomew's Hospital states that: "In the headaches *due to debility* he had to confess that the results were not entirely satisfactory." "One of the patients, after the first dose of three grains, said 'she felt as if the top of her head were being lifted off,' and would not take any more." He also relates another case of a medical man who took three grains for a headache and was seized with a feeling of "weakness and giddiness." Mr. Bokenham attributes this to idiosyncrasy. Supposing him to have been a strong and robust man, would the effect not have been much more serious if he had been an asthenic? To a lady weakened with long-continued illness I administered a single dose of ten grains on going to bed. She exclaimed shortly thereafter, as I am informed: "Oh my! What a queer feeling! I feel cold all over! I feel as if I was freezing inside!" Hot bottles had to be procured and an additional supply of warm blankets, in order to bring about a reaction. That this effect of impending collapse was not due to idiosyncrasy in her case is proved by the fact that she has since had the

[1] Arch. It. de Biol., 1884, fasc. ii., 134

same dose administered, but after she has been in bed and comfortably warm there. The drug was administered as an anodyne, no pyrexia being present. Then Friedländer's observations go to prove that "antipyrin acts better on well-kept children than on those who are poorly taken care of."[2] According to Cappola[3] it produces a fall of temperature "normal or pathological." It will be admitted, I think, that a remedy capable of lowering normal temperature must be used with great care in asthenic patients.

Turning now to antifebrin, Dr. Hamilton's experience that it is not adapted for asthenic cases is noteworthy, especially in view of the manner he prescribes it—viz., in small doses often repeated at short intervals. I do not think it is beneficial to administer it so for zymotic pyrexia at all, and even in cases of inflammatory pyrexia I think it should be given *ad hoc* in large doses at long intervals. I have had very disappointing results—unequal effects—from it given both ways; but I have no doubt now that the large dose and long-interval method is the right one. The only case of relapse of scarlet fever I have ever seen occurred lately in a sthenic case which had been treated by antifebrin; and in another sthenic case of S. anginosa, and an asthenic acute tuberculosis, the troubles were entirely unmodified unless it were by preventing hyperpyrexia. In asthenic enteric in twelve-grain doses it has seemed to induce earlier apyrexia, however, and to have answered well in various asthenic phlegmasiæ. As to the question of dose, I find Fürbringer[4] has given thirty, forty-five, sixty, and in one case 120 grains without any toxic action of consequence. Then in the same journal for January, 1887, the obervations of Drs. Colin and Hepp at the clinic of Professor Kussmaul of Strassburg are epitomised. They found "it can be used in relatively large doses without causing toxic effects; the size of the dose was determined by the character, severity, and stage of the fever, and also the idiosynerasies of the patient. The effects were quite as rapidly induced, and were four times stronger than those produced by antipyrin. The impression made by it on the pyrexia is better effected by *larger doses at longer intervals* than by smaller doses at shorter intervals."

Finally, as to the dose and mode of administration of antipyrin, whilst the latter must be largely left to the discretion of practitioners, there is evidence to show that the large dose and long-interval method is here also the better, whether it be given hypodermically or otherwise. In THE LANCET, I think, sometime last year, Dr. Germain Sée wrote advising hypodermic injections of eight grains. This allows for a dose of from thirty to thirty-five grains given by the mouth. Blanchard has given[5] from sixty to ninety grains in acute rheumatism, from fifteen to thirty grains in acute exacerbation of chronic bronchitis, ephemeral fever, influenza, &c., single doses being frequently adequate. Ungar gives from fifteen to twenty grains for hemicrania. Friedländer says, "Nine grains are sufficient for a child two years of age, and the effect will last about twenty hours." Lauder Brunton gives the dose at "thirty grains hourly for three hours and one grain and a half for every year of a child's age may be given hourly for three hours."[6]

In conclusion, I would say that, whether the generalisation I ventured to make proves ultimately to be correct or not in practice, practitioners will find it of service to keep the question in view when prescribing these drugs.

Glasgow.

A NEW METHOD OF EXTENSION IN HIP-JOINT DISEASE.

BY A. H. TUBBY, B.S. LOND., F.R.C.S. ENG.

THE objects aimed at in applying extension in disease of the hip joint, whether by means of weights or splints of various descriptions, may be briefly summed up thus: firstly, the necessity of obtaining complete rest of the affected part, not only in the sense of freedom from movement, but also the prevention of that reciprocal irritation which ensues when diseased surfaces are in contact, in this particular instance inducing very severe pain and muscular spasm; and, secondly, when the inflammation subsides, to ensure as little resulting deformity of the spine, pelvis, and limb as possible. Many methods have been and are employed, but some of them are not simple and efficient, and others are open to grave objections. The plan which I venture to suggest fulfils all the requirements of early treatment, and is very simple in its application.

It is now generally agreed that to apply weight extension to the limb, regardless of its position, is not only useless, but often mischievous. The reason is not far to seek. If, in the stage of abduction and flexion, a weight be simply applied to the leg by means of a stirrup, a part of the force acts along the line of the tibia, and not that of the femur, and so is of little practical value, while the remainder, which is in the direction of the upper part of the limb, tends to produce negative rather than positive results. We have to deal with an apparently extended thigh, but in reality there is flexion compensated by lordosis of the lumbar spine. Any force, then, which tends to bring the thigh in contact with the bed, without diminishing the lordosis, increases the tension of the anterior muscles of the thigh, and of the inflamed anterior ligaments of the capsule of the joint, upon which, as a fulcrum (to quote Mr. Barker's words), "the leverage of the femur will still further force the head into the acetabulum, and bring the diseased surfaces in closer contact."

Mr. Howard Marsh's plan in the stage of rigidity and pain is to raise the limb until all lordosis has disappeared, and thus, having ascertained its true position, to place it on an inclined plane the angle of which corresponds with that of the thigh, and then to apply weight extension. By using a sufficiently broad surface the limb can be accommodated in almost any degree of abduction or adduction. When all the muscular spasm has subsided, the limb is placed horizontally on the bed, and extension still maintained. But this method takes no cognisance of the accompanying lateral curvature of the spine, nor does it secure as much separation of the joint surfaces as possible. We know that in abduction the affected side of the pelvis is tilted downwards, and there is a lateral curvature of the lumbar spine with the concavity looking towards the sound side. By the application of one weight only the pelvis is still further tilted and the curvature increased.

The method which I have seen employed by Professor von Volkmann at Halle is the following. In abduction a weight is applied to each leg, but the *heavier* weight is on the *sound* side. What is the result of this? There is still extension on the diseased side as before, but there is another force acting on the pelvis from the sound side. This latter force, in the first place, tends to render the pelvis horizontal, and, acting lever-like with the lumbo-sacral articulation as a fulcrum, not only corrects the tilting, but also separates more thoroughly the diseased surfaces, and still further ensures a normal spinal curve when cure takes place. This happens more frequently without operation than we are led to suppose in general hospitals, and this statement is verified by the statistics of Mr. Howard Marsh. But Professor von Volkmann's plan is not applicable if flexion and abduction be present, but only when the former has disappeared.

I would suggest, then, that if we have to deal with a diseased hip, with much muscular spasm and excessive pain, a combination of the two methods should be employed—viz., to place the affected part on an inclined plane of such an angle that the lumbar spine is in complete contact with the bed, and then to apply a weight to each limb, but that on the sound side should be three or four pounds heavier than that on the diseased side. In the condition of abduction only, Professor von Volkmann's plan fulfils all requirements; and in adduction, with the pelvis tilted upwards on that side, one weight only is needed to compensate the deformity. Weights can be readily extemporised from calico bags filled with shot.

Halle, Germany.

[2] Quoted in Provincial Medical Journal for June 1st, 1888, p. 283.
[3] Inter. Journ. Med. Sciences, April, 1886, p. 397.
[4] Loc. cit., p. 528, 1887.
[5] Loc. cit., April, 1886 and 1887, pp. 527 and 528.
[6] Pharmaceutics, &c., p. 824.

TOLWORTH INFECTIOUS HOSPITAL, KINGSTON.—A hospital for infectious cases, situated at Red-lion-lane, Tolworth, has been provided for the district by the Kingston Rural Sanitary Authority. It is erected on land comprising about three acres, and consists of four large buildings, each disconnected and isolated. The special isolation block contains four wards, two respectively for males and females. The total expenditure has been £7850.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

POISONING BY ACONITE AND BELLADONNA.

BY HUGH R. JONES, M.A., M.B. CANTAB.

AN old lady, seventy-five years of age, swallowed by mistake a large tablespoonful of a mixture of equal parts of aconite and belladonna liniments. She vomited almost immediately, and an emetic of salt-and-water was administered by her friends. On the arrival of myself and my friend Dr. Hunt Cooke at 10 P.M. (three-quarters of an hour after the liniment had been swallowed), she was retching and vomiting, and complaining of a curious sensation in her throat and of tightness across her chest, which prevented her lying down. Pulse 98, slightly irregular, small and weak; pupils equal, not dilated. I washed her stomach out with warm water and gave her two drachms of brandy at once, and afterwards the white of an egg beaten up with two drachms of brandy and half an ounce of water every hour, in small quantities at a time. This appeared to relieve the vomiting, which was almost incessant. The pulse grew weaker and weaker, slower and more irregular, until an attack of faintness came on at 10.30 P.M. The pulse was then 64, and imperceptible at the wrist; when felt at the elbow it was weak, extremely irregular, and intermittent. The extremities were cold. Respiration ceased, and the patient became quite rigid, the jaws being firmly closed, with conjugate deviation of the eyes to the left. This attack was relieved by ten minims of brandy given hypodermically. The pulse improved slightly, but gradually failed again, until at 10.50 P.M. she had a second attack, similar in all respects, which was relieved in the same way. From this time there was a gradual though tardy improvement in the pulse and marked diminution of retching, so that at 1 A.M. I was able to leave her fairly comfortable. During the greater part of the time she was slightly delirious. The following day she had great abdominal soreness and occipital headache, but had otherwise quite recovered. The symptoms seem to have been almost entirely due to aconite, the delirium alone being possibly assignable to belladonna. The effect of the brandy was so marked each time it was given that I considered it unnecessary to use digitalis or any other drug.

Llanwddyn.

A PLEA FOR THE USE OF THE RHINOSCOPE.

BY WM. ROBERTSON, M.D.,
SURGEON TO THE THROAT AND EAR HOSPITAL, NEWCASTLE-ON-TYNE.

THE following cases, although not of exceptional interest, supply sufficient proof of the advisability, as a matter of routine, of the use of the post-nasal mirror in every case of the description referred to.

The first case is that of Mr. R——, who came to me complaining of deafness of four years' duration. A watch was heard on contact only, and, with the exception of some cerumen in both meatus, the case further presented very little evidence of disease to the ordinary methods of investigation. The pharynx was healthy, and the nose remarkably free from catarrh or stenosis. The history was that he had suffered from a chancre four years ago, that subsequently he became deaf, and had remained so ever since. On arriving in England, he had consulted various medical men, all of whom failed to make out any cause for the deafness. With the help of the mirror a curious state of the post-nasal space was noticed. It was found occupied by heaped-up masses of hard, dry crusts. On removing these, an explanation of the deafness was accounted for. Extensive ulceration surrounded the right nares posteriorly, exposing the vomer in the neighbourhood. The tissues in the space were extensively infiltrated, and both tubes choked. Chromic acid was freely applied to the disease, whilst a spray was ordered for constant use. The internal treatment consisted of blue pill and iodide of potassium. In two days the hearing had improved, so that a moderate pitch of the voice could be heard.

The second case, that of Miss I——, is an example of a numerous class who present themselves with symptoms, although indefinite, pointing towards implication of the upper air passages. A prominent symptom in this young lady's case was a severe pressing pain over the root of the neck posteriorly, forcing her to lean forward, in which position she got relief. The other symptoms were periodical attacks of somnolence in the daytime; palpitation, frequently awakening her in the night; depression, and irritability of temper. This state of matters had continued more or less for ten or eleven years, during which term various diagnoses were arrived at: incipient heart disease, commencing tuberculosis in one or other lung, hysteria, want of occupation, &c. Examination of the nares anteriorly betrayed nothing, with the exception of a marked deviation of the septum to the right, and hypertrophy of tissues over both lower turbinated bones. The pharynx was normal and roomy. With the mirror a large polypus, about the size of a nut, was discovered protruding from the right nares posteriorly. On removing this through the mouth, another equally large was brought into view, and was snared through the nose. All the symptoms mentioned disappeared, and appropriate treatment of the other lesions finished the case.

One cannot be too careful in examining the nose in patients who present themselves complaining of throat symptoms with no apparent lesion there, for, in examining such, small polypi are often discovered in the posterior regions, while anteriorly the nose appears to be unaffected.

Newcastle-on-Tyne.

ABSCESS IN THE FEMORAL REGION SIMULATING HERNIA.

BY H. V. DREW, M.R.C.S., L.R.C.P.L.,
LATE RESIDENT SURGEON TO THE TIMARU HOSPITAL, NEW ZEALAND.

KATE O. B——, single, aged about thirty, was admitted into the Timaru Hospital suffering from a fluctuating swelling in the right femoral region, evidently an abscess; temperature 104°. About a fortnight before being admitted she was serving dinner, when, after carrying a somewhat heavy dish, she was seized with violent vomiting and acute pain in the region of the umbilicus. She did not notice any swelling, nor had she previously noticed any, and was before this event in perfect health. Her mistress sent for a medical man, who for some reason could not come. She had complete constipation. This occurred on the Tuesday night. She continued in the same condition until the Thursday morning. Domestic medicine had been resorted to, and aperients had been administered, of course without relief. On the Thursday morning the symptoms suddenly abated, and on the Saturday she was seen by a medical man, who apparently made no diagnosis. Some short time after this she complained of a swelling in the femoral region, and she was sent to the hospital without a word concerning the history of her illness. From the above symptoms the diagnosis of unrelieved (surgically) strangulated femoral hernia was made. The patient declined to allow the abscess to be opened, though suffering from severe constitutional disturbance; so hot fomentations were applied and opium given. The next day the skin sloughed, and a quantity of pus, fæces, and a small slough were discharged. Her temperature fell to normal after the cavity had been cleaned and dusted with iodoform. Fæces and gas continued to be discharged for about a fortnight, when the wound gradually granulated up and the patient left the hospital well.

From what I could gather the patient seemed to have suffered acutely, and the strange thing about the case, apart from her fortunate recovery, appears to be the long interval that elapsed before the crisis occurred—viz., from the Tuesday night until the Thursday morning.

New Zealand.

THE LEWISHAM TRAGEDY.—The chemist's assistant who supplied eight grains instead of five drops of liq. strych., by which mistake it will be remembered a Lewisham publican recently lost his life, has been fined £5 and 12s. costs for not labelling the bottle in which it was supplied with the name and address of the seller of the poison, and omitting to cause any entry to be made of the sale in a book kept for the purpose.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

PADDINGTON INFIRMARY.

A CASE OF HYSTERICAL APHONIA IN A WOMAN AGED SEVENTY-ONE; RECOVERY; REMARKS.

(Under the care of Dr. T. D. SAVILL.)

THE chief point of interest in the case here recorded is the age of the patient at the time of the development of the affection for which she was under treatment.

H. B——, a woman seventy-one years of age, was admitted on June 7th, 1888. She was a small, sparely-built woman, of a neurotic temperament, and complained of complete loss of voice. The loss of voice had come on quite suddenly one morning eight months previous to admission, while she was recovering from a slight attack of bronchitis, and it had persisted ever since. She was quite unable to speak above the lowest whisper. The lungs were emphysematous. The urine was of low specific gravity, and contained a faint trace of albumen. The arteries were somewhat firm. She complained of occasional attacks of giddiness, but otherwise she seemed in very good health for her years. The climacteric had occurred twenty-six years previously, and there was nothing worthy of note in her previous or family history. There were scattered patches of partial anæsthesia over the left leg, right thigh, and both arms, and well-marked ovarian tenderness on both sides.

On laryngoscopic examination the next day, an adductor paresis of the vocal cords was discovered. There was no congestion, ulceration, or growth discovered which could account for the loss of voice. From this circumstance, the patchy anæsthesia, the ovarian tenderness, the patient's temperament, the history of sudden advent, and the adductor paresis, the aphonia was ascribed to functional causes. A strong faradaic current was then passed across the larynx by means of a reophore placed externally, one on each side, and the patient was encouraged to call out. She was promised that the application should cease immediately that she did so, and after much evidence of tribulation she uttered articulate and vocal sounds.

During the next few days there was a slight tendency to relapse, but the threat of another application was sufficient; it never really became necessary, and she left the infirmary perfectly well on June 20th to resume her occupation—that of charwoman.

Remarks by Dr. SAVILL.—Hysterical aphonia is by no means a new disease. Heberden gave an excellent description of it in his "Commentaries,"[1] published in 1802. He points out the peculiarity that in some cases, although the patient can laugh, she cannot speak aloud. It usually comes on and disappears suddenly, he says, and the disease is very liable to relapse. All the remedies he tried were unavailing. Hysterical aphonia is by no means a rare disease, and this case presented no special difficulty of diagnosis. The chief point of interest lies in the age of the patient. The times of life at which it most frequently occurs are under thirty and at the climacteric; and though it may occur at other times, I am not aware of any recorded cases over seventy years of age. In the foregoing case, as is usual, the affection was due to an adductor paresis of the vocal cords. It was cured, as it generally may be, by a violent shock. I am not disposed to regard the electricity as having any special virtue *per se*. It is the suddenness of the shock, combined with the pain and unusual sensation produced by the faradaism, which is the chief agent. The short time (eight months) during which the disease had existed made it easier to cure. Some may be inclined to take exception to my use of the word "hysterical." But, while I am not concerned to defend it on any other ground, it has the advantage of being established by long custom, and therefore conveys a clear idea to the mind of the reader, and represents a more or less definite group of clinical phenomena. The unbounded gratitude expressed by this patient at her cure is a point worthy of note. It illustrates the fact, which I have found pretty constant, that patients suffering from these affections are very desirous of deliverance from them, and indicates the reality of the disease.

[1] Commentarii de Morborum Historiâ et Curatione, cap. 100, p. 406.

BURTON INFIRMARY.

A CASE OF TRAUMATIC TETANUS; RECOVERY; REMARKS.

(Under the care of Mr. BELCHER.)

FOR the following report we are indebted to Mr. Oldham.

A. D——, a healthy youth, aged nineteen, a scavenger, was admitted on April 19th, 1888, with a lacerated wound of the outer side of the right hand; the abductor indicis and first lumbricalis were torn through, the index metacarpo-phalangeal joint was opened, and the soft parts contused; the hæmorrhage was free and the wound filled with grit. It was dressed with carbolic lotion, iodoform, and "Gamgee" tissue.

April 25th.—Dressed daily to date; hand swollen and painful; wound sloughy. Linseed poultice applied. Temperature: morning 99°, evening 100°.

26th.—Wound improved; half an inch of a digital nerve exposed. This was pulled and cut off short. Temperature: morning 99°, evening 98·6°.

30th.—Wound healing; dressed with wet boric lint.

May 2nd.—Constipation relieved by white mixture; one or two ashy points in the wound. In the evening he had a rigor. Temperature 103°; pulse 112. Complained of a sore throat and stiff neck. Said he had caught cold from an open window. Fauces congested. Twenty grains of salicylate of soda were ordered every two hours.

4th.—Temperature: morning 103·2°; pulse 112. Angles of mouth drawn up; masseters contracted; unable to eat his fish dinner. Temperature: evening 101·6°.

5th.—Temperature: morning 99°; pulse 112; respiration 30. Trismus and risus; recti abdominis stand out like tense cords. The patient was removed to the private ward. Soap enema ordered; a sixth of a grain of extract of physostigma every hour. After five doses this was increased to a third of a grain every hour.

6th.—Typical and severe tetanus had now developed. To take the extract (one grain) every half hour. At midnight he was worse; two grains of the extract given every half hour.

8th.—Wound more healthy; symptoms persistent and worse. Sixty grains of chloral during the night. Physostigma continued; has lost much flesh. Sordes. Temperature 98·4°; pulse 120.

10th.—Temperature normal; spasms every fifteen minutes, lasting one minute; pupils contracted.

11th.—Temperature normal; pulse 96. Great thirst; tongue dry and cracked. Since midnight of May 6th has been taking the extract at the rate of ninety-six grains every twenty-four hours. To continue the extract, two grains every hour.

12th.—Great pain in loins; spasms every twenty minutes. One ounce of brandy mixture ordered every four hours.

15th.—Spasms less; wound healing rapidly; tongue moister.

16th.—Disturbed by admission of another patient; spasms more frequent.

20th.—Wound nearly healed; spasms only when excited or disturbed. Ate some bread-and-butter with difficulty.

22nd.—Mincemeat ordered.

30th.—Ordinary diet. Spasms are now once or twice in twenty-four hours. Recti muscles are rigid.

June 5th.—Sat up in an armchair for half an hour.

8th.—Walked out of doors for ten minutes.

12th.—Discharged cured.

Remarks by Mr. BELCHER.—Causation: 1. The injury. 2. Dirty wound; a scavenger. 3. Nerve exposed and cut. No symptoms for seven days. 4. Exposure to chill from open window. Must we (if perfectly logical) cross out the descriptive adjective in our title, and take the romance out of the case? I fear so. Look at the rise of temperature, the red fauces, the salicylate of soda treatment pointing to catarrh before tetanus cut in. May I digress? I only recall as under my own care four cases of tetanus; the first years ago, when I was house-surgeon under that accomplished surgeon, the late Mr. John Gay. I sent off for him at night, saying I had a case of hydrophobia from the bite of a pig. He went back grave, remarking, "What a disappointment—

fatal!" The second (idiopathic): Many years since a drunken man was carried by his companions into the public-house, where he lived (and died), stripped naked from his muddy clothing, and left all night with an easterly wind blowing upon him from the open casement. The third, many years ago, again an injured finger, tetanus moderate, I decided to amputate. The patient had not taken many inspirations of the chloroform when—I have no doubt now, it puzzled me then—spasm of the glottis occurred, and instant death. To return to the fourth, our present case. In five days he took of the physostigma (fresh specimen from Harris, Birmingham) ninety-six grains, and for nine days forty-eight grains, without paralysis, probably the largest dose taken for so long a time. It "beats the record" of Ringer—two grains and three-quarters hourly for a day and a half, and for a short time four grains hourly. Anticipatory tracheotomy had been declined, but every precaution was taken to ensure its performance if perchance in time.

MOUNT BISCHOFF HOSPITAL, TASMANIA.

ACUTE INTUSSUSCEPTION; LAPAROTOMY; RECOVERY.

(Under the care of Mr. MONTAGU PERCEVAL.)

E. A. S——, aged twenty-one, a miner, had been complaining for a few days previous to the accident of soreness in the lower part of the right side, from his leg having slipped through the rails while wheeling a truck, and on the afternoon of May 23rd, while twisting the truck on a sheet of iron from one line to another, he experienced a sudden violent pain in the lower part of the stomach, which "doubled him up" and produced an intense feeling of sickness, but he did not vomit.

The patient was seen at 6.30 P.M. Decubitus dorsal, and knees raised. Sharp pain in right side; nausea present; face flushed; pulse 80, hard, and full. On examination, a distinct tumour could be felt in the right iliac region, which was tube-like in character, three inches in length, and an inch and a half in width. The bowels had been freely opened before the accident. Two grains of opium were given, to be followed by one grain every three hours, with the view of checking peristalsis and vomiting. Only a few spoonfuls of water were allowed to quench the thirst. At 10 P.M. the pain was slightly easier.

May 24th.—No sleep; restless; pain easier; no vomiting; nausea present; retention of urine; has not passed flatus; abdomen tympanitic. Ordered removal to hospital, where a consultation was held with Dr. Kennedy, who agreed as to diagnosis. It was first suggested that inflation should be tried to overcome the obstruction. This was done, until struggles on the part of the patient (although the conjunctiva was perfectly insensible) compelled Mr. Perceval to desist without success. Distension by means of fluid was then tried, but this also failed in overcoming the obstruction. The vomiting being severe, it was decided to keep the patient under the full influence of opium, and perform laparotomy the following morning.

25th.—Little sleep; no pain. A catheter was passed. No flatus; tympanites less. Methylene was used in the place of chloroform to avoid subsequent vomiting, but in this case it was not so successful as had been hoped from results obtained previously. An incision was made four inches in length along the linea alba, commencing an inch and a half below the umbilicus, and continued on until reaching the fascia transversalis, which with the peritoneum was divided upon a director. There was very little venous oozing during the incision. On opening the cavity of the abdomen it was found to contain four ounces of serous fluid. The small intestine for about the length of eighteen inches above the obstruction was intensly congested. On passing the hand into the cavity of the abdomen, the seat of stricture was found to be at the ileo-cæcal valve, and, as far as could be judged, about three inches of small intestine projected through that opening; this was returned after four attempts by pressure between the fingers from behind forwards. The incision was then closed with wire sutures and the wound dressed with a pad of lint with carbolic oil and bandage. No antiseptics were used in the accepted meaning of the term, as means were not at hand; precautions were taken to have all instruments, sponges, &c., carbolised, and the open wound protected by warm pads of lint saturated with carbolic lotion. Some little vomiting occurred, which was controlled with champagne. At 7.30 P.M. a catheter was passed. Pulse 64; temperature 99°. The treatment consisted of one grain of opium every three hours, and a tablespoonful of extract of meat was given every hour.

26th.—Morning temperature 99°; pulse 56. Fair night; not much pain. Passed urine and flatus. Evening temperature 99·2°. Much easier; sleeps; no vomiting. Takes beef-tea well.

27th.—Morning temperature 98·8°; pulse 60. Slept several hours. Evening temperature 99°.

28th.—Morning temperature 99°; pulse 62. No pain. Evening temperature 99°; pulse 60.

29th.—Morning temperature 98·4°; pulse 52. Slept well. The opium pills were discontinued, and the quantity of beef-tea increased.

30th.—Morning temperature 98·4°; pulse 48. Wound healed; stitches removed. Allowed milk foods.

31st.—Temperature morning and evening normal.

June 1st.—The patient expresses himself as quite comfortable. An enema was given, which acted well. From this date the patient made uninterrupted progress towards recovery, and was able to get up on June 10th.

BRITISH MEDICAL ASSOCIATION.

FIFTY-SIXTH ANNUAL MEETING.

Held in Glasgow on August 7th, 8th, 9th, 10th, and 11th.

PERHAPS the most striking and interesting event of the week's proceedings was the address which Dr. Macewen delivered on the morning of Aug. 9th, in the Bute Hall, upon his "Recent Investigations in Surgery." The following morning a large number of members attended the Royal Infirmary by invitation, when Dr. Macewen, Dr. Morton, Dr. Fleming, Mr. H. E. Clark, and Dr. Knox gave clinical demonstrations in the wards and operating theatre.

At 2 P.M. on Friday, the honorary degree of LL.D. was conferred on several gentlemen connected with the meeting of the Association. The ceremonial took place in the Bute Hall, the chair being occupied by the Very Rev. Principal Caird, Vice-Chancellor of the University. Professor Robertson, Dean of the Faculty of Law, presented each of the recipients in turn to the Vice-Chancellor, who "capped" them.

The following is the list of those upon whom the honorary degree was conferred: Sir William Aitken, Dr. T. Clifford Allbutt, Professor B. Ball (Paris), Dr. G. T. Banks, Dr. Fordyce Barker (New York), Dr. Moritz Benedikt (Vienna), Dr. Bridgwater, Dr. J. Macintyre, Dr. W. C. Maclean, Dr. Jas. Morton, Dr. W. Munro, Dr. F. W. Pavy, Sir G. H. Porter, and Dr. D. Yellowlees.

After this the members adjourned to the Natural Philosophy Class-room, where Professor M'Kendrick delivered the address in Physiology; and the concluding general meeting was held, the usual votes of thanks to all concerned in the success of the meeting being passed.

At 4 o'clock a garden party, given by the Faculty of Physicians and Surgeons, took place in the Botanic Gardens. It was very numerously attended, the visitors being received by Dr. Morton, President of the Faculty, and Mrs. Morton. The same evening a conversazione was given by the Corporation of Glasgow in the Exhibition buildings, the Grand Hall and Fine Art Galleries being set apart for the purpose. This was not the least brilliant and successful of the gatherings of the week, and was very numerously attended.

On Saturday excursions were made by the members and their friends to various places of interest—viz., (1) Lanark and Falls of Clyde; (2) Ayr, and the Land of Burns; (3) the Perthshire Highlands, Lochcarnhead and Crieff; (4) Callander and the Trossachs; (5) Arran; (6) Stirling, Bridge of Allan and Dunblane Cathedral; (7) Rothesay, and the Kyles of Bute; (8) Loch Lomond.

During the week various shorter excursions were planned, and, indeed, no pains were spared to make the visit to Glasgow a memorable as well as an enjoyable one.

THE SECTIONS.

MEDICINE.

On Friday, the 10th inst., Dr. McCall Anderson in the chair, Dr. THEODORE WILLIAMS (London), in opening a discussion upon the Value of Inhalations in the Treatment of Lung Diseases, remarked that the direct application of medicinal agents to the air passages dated from Hippocrates, who used fumigations, employing a pot through the lid of which a reed passed conducting the vapour to the mouth, sponges being used to prevent scalding. The return to the use of inhalations of late years might be traced partly to the accumulation of proofs that various substances could be absorbed by the air passages, and partly to the antiseptic system. The fact, however, that this direct mode of treatment had hardly held its own against the indirect mode of giving drugs by the stomach was presumptive proof that inhalations *per se* were inadequate for dealing with pulmonary diseases. The various methods of inhalation might be classified as follows:—1. Inhalation of gases, such as oxygen, nitrous oxide, atmospheric air (condensed or rarified), or vapours of certain medicines (volatile) at low temperatures, as ether, chloroform, nitrite of amyl, and iodide of ethyl. 2. Moist warm inhalations. 3. Dry fuming inhalations. 4. Atomised sprays. 5. Respirators containing antiseptic substances. As regards the first of these methods, there could be no doubt of its efficacy, as the full physiological effects of the various drugs were thus obtained. If antiseptic agents could be pushed to the same degree, and the patient brought thoroughly under their influence, it was probable that the results in pulmonary disease would be much more successful than they were at present. The second method had the great drawback of saturating the air with watery fluid, and, according to the experiments of Dr. Hassall, it was very doubtful whether any considerable proportion of the medicaments used really reached the diseased area. This mode of treatment was useful in croup, laryngitis, pharyngitis, and in affections of the larger bronchi, but its utility in capillary bronchitis and phthisis was doubtful. He had performed a series of experiments to determine whether drugs were really absorbed by this method, and had found that turpentine was readily absorbed, but that iodine was not. This was the more remarkable, inasmuch as iodine was easily absorbed by the stomach. Hæmoptysis had been rather frequent in connexion with these experiments. Of the third mode there were examples in the case of Himrod's powder, the use of medicated cigarettes, the inhalation of iodine fumes, carbon cones, &c. The evidence available seemed to show that the drugs thus employed were more effectual if given by the mouth. The fourth method (atomised sprays) seemed ineffectual to cause the penetration of the medicaments to any depth, and was apt to cause hæmoptysis. The fifth method was a favourite one, and many inhalers were in use, of which he might mention Burney Yeo's, Coghill's, and Curschmann's. The radical defect of this method was that it impeded free respiration, the patient feeling like a muzzled dog. His conclusions were as follows:—1. That the success of inhalations as a mode of medication depended principally on the easy convertibility into gas or vapour of such substances as were clearly desirable for the purpose. 2. That, consequently, bodies which were volatilised at ordinary temperatures were more readily absorbed by the lungs than bodies which had to undergo combustion before conversion into gases. 3. That all moist inhalations where steam, watery vapour, or spray was the vehicle of medication, were but slowly absorbed by the lungs, and entered the circulation in small quantities, and in some cases not at all, the slow rate of pulmonary absorption contrasting strongly with the rapidity of gastric absorption of the same medicines when swallowed, as proved by their detection in the urine. 4. That medicinal inhalations were more useful in diseased conditions of the pharynx, larynx, and larger bronchi than in those of the alveoli and lung parenchyma. 5. That in pulmonary disease the antiseptic respirators, while they lessened cough and reduced expectoration, exercised no lasting remedial influence upon the morbid condition, and did harm by impairing freedom of respiration.—Dr. ANDREW SMART (Edinburgh) exhibited a new species of inhaler for fitting into the nose. He had a strong belief in the efficacy of inhalation, his patients frequently expressing their sense of the benefit which they derived from their use. He regarded creasote as one of the most valuable remedies in this mode of treatment, but advised its dilution.—Dr. LINDSAY (Belfast) said he had given inhalations an extensive trial, and was disposed to regard them as of considerable value in affections of the bronchial tubes, but as of very doubtful utility in diseases of the lung tissue proper. In acute bronchitis inhalation of simple steam was a remedy of great value, lessening spasm and promoting secretion. In chronic bronchitis inhalations impregnated with turpentine, carbolic acid, or creasote were valuable for improving the character of the expectoration. The real controversy in the question raged rather round the value of inhalations in phthisis. He had begun their use with hope, but his results had been mainly negative. He feared the amendment so often reported by patients from the use of inhalations, as stated by Dr. Andrew Smart, was exceedingly fallacious. Patients liked active treatment, and were very partial to novel remedies. To the so-called bacillicide treatment of phthisis there were, in his opinion, three strong objections: 1. It was not clear that the destruction of a microbe so tenacious of life as the bacillus of tubercle could be effected by any inhalations at our command. 2. If the bacillus could be destroyed, the receptivity of the patient to fresh infection would remain, and so nothing material would have been effected. 3. The adoption of warm inhalations and the use of inhaling chambers &c. were very prejudicial to that hygienic treatment of phthisis of the value of which there could be no question. Whatever success in the treatment of phthisis he had seen in his own practice or that of others had been obtained by a radically different method—viz., by aiming at improving the constitutional condition and thus lessening the receptivity of the patient. This was effected by the rigid regulation of the mode of life, by diet, by tonic remedies of various kinds, and, when possible, by change of climate.—Dr. IRELAND (Edinburgh) had had considerable experience of the pine forests of the Himalaya, and he had certainly seen some cases of early phthisis which had seemed to derive benefit from their residence among them.—Dr. COGHILL (Ventnor) had given great attention to this line of treatment, but it had not hitherto quite realised the expectations which he was inclined at first to expect from it. He was convinced, however, that it was founded upon a correct pathology, and thought it the duty of the profession to persevere in their investigations, in the hope of discovering some agent that would fulfil the necessary conditions. He had seen considerable advantage from inhalations in phthisis, bronchitis, and bronchiectasis. He was against the use of oro-nasal inhalers. He was disposed to think that medicated inhalations reached the diseased portions of the lungs specially.—Dr. SMITH (Netley) wished to say a few words upon his extensive experience of India. He protested against sending consumptives to that country, as, during the hot, damp weather of the monsoons the disease progressed with much greater rapidity than at home. He had been struck with the utility of inhalations most of all in a class of case which had come much under his notice—viz., where a hepatic abscess ruptured into the lung. He had seen hectic fever controlled by Coghill's inhaler and inhalations. He had been in places where the inhabitants attached great value to inhaling the fumes from kerosene wells, &c.—Dr. DENISON (Colorado) said he thought there was less and less effect obtained from inhalation as we went from the large bronchi towards the periphery of the lung. It should be remembered that in phthisis recovery was brought about by the development of fibroid tissue; hence it was probable that the inhalations go to the open alveoli—i.e., to the healthy portions of the lungs. There was no medicament at all in the air which he regarded as the most useful in phthisis—viz., the cold dry air of high altitudes. In dry climates there was much more moisture exhaled from the lung than in humid climates, and the exhaled moisture was probably a vehicle for carrying off the bacilli.—Dr. GIBSON (Newcastle-on-Tyne) advocated the use of dry-powder inhalations, such as nitrate of silver and sulphate of copper, diluted with dried sugar or lycopodium.—Dr. BRETT (Watford) thought there was truth as well as wit in the saying that "Patients die because they won't expire." Free respiration was essential in phthisis.—Dr. WILLIAMS, in reply, expressed his gratification that the discussion had, in the main, served to substantiate the views put forth by him in his opening address.

Dr. CAVERHILL (Edinburgh) exhibited a patient suffering from remarkable symptoms connected with disease in the motor area of the brain.—Dr. ROSS (Manchester) made some remarks upon the case.

Dr. PAVY (London) read a paper on Neuritic Symptoms

in association with Diabetes. These symptoms closely resembled those of tabes dorsalis. There was a species of ataxia, numbness or hyperæsthesia, lightning pains, and impairment or loss of patellar tendon reflex. There was deep-seated pain, described by patients as being "in the marrow of the bones." He regarded the symptoms as identical with those of "peripheral neuritis." They were seen almost exclusively in the milder forms of diabetes occurring after middle life, and were amenable to treatment, iodide of potash being most valuable. One point of distinction between this condition and tabes was that in the former the patient could stand with his eyes shut. The symptoms bore no relation to the severity of the diabetes.—Professor JACOBI (New York) had seen this condition in diabetes, and had found salicylate of soda very useful.—Dr. Smart, Dr. Harrison, and Dr. Ross made some remarks.

The proceedings of the Section soon after terminated.

SURGERY.

The day's proceedings on Friday, the 10th inst., began with a special discussion on the Operative Treatment of Club-foot, opened by Mr. LUND, of Manchester, who said that while in early cases moulding of the foot, with or without tenotomy, was sufficient to cure the deformity, there were many severe cases, or cases delayed till there was great and permanent deformity of bones, which required excision or resection of bones for their relief. He suggested that the discussion should be specially directed to the consideration of these latter methods. He had been the first to excise the astragalus for severe talipes, and he now showed the patient to the section, after sixteen years. The movements and shape of the right foot were extremely good, there being merely a slight depression in front and to the outside of the ankle joint. The left foot, however, was very stiff, and still somewhat deformed, the patient walking on his toes, as if there was some ankylosis of ankle; the muscles of both calves were much atrophied. The astragalus was considered by Mr. Lund the key to the deformity, and its removal afforded the best results in bad cases. Properly to judge of the effects of operations, the cases should be seen in after years.—Mr. R. W. PARKER (London) read a long and interesting paper referring in detail to the anatomy of the parts and the nature of the deformity. The only constant condition he had found in his researches was the shortening of the ligaments of the foot. The bones were not always altered in shape. In early talipes a change of shape of the astragalus of the nature of a reversion to the Simian type was common. All infants might be said to have a certain amount of talipes, and could supinate the foot to some extent; but unless there was a shortening of the ligaments there was no permanent talipes. Bones were altered in relation to each other and in shape by pressure, and if they were not radically at fault there was no need to excise them, unless in very late and severe cases. The treatment of club-foot should begin very early. The foot should be forcibly straightened and fixed in plaster-of-Paris for a fortnight at a time. If this were repeated several times the result was generally good. Tenotomy was never called for, and would only substitute a defect of development of bones for the talipedic deformity.—Dr. OGSTON (Aberdeen) had operated on 173 cases of talipes, and had found no one method suitable for all cases. Talipes was not a defect or paralysis of tendons, and was not to be cured by cutting tendons. Tenotomy of tendons in their sheaths was absurd, as no union ever took place. Stretching of tendons in early life was easily effected; the foot at six weeks of age should be forcibly moulded till it does not spring back, then fixed in plaster-of-Paris for six weeks. The incurved adducted position was remedied first, then the tendo Achillis was always cut. If necessary the plantar fascia might also be cut. According to the age of patient, from three to eight sittings might be necessary for the rectification of the adduction, and from one to three for that of the incurvation. Tarsotomy by subcutaneous puncture and chain saw passed round the foot was done five times, but was now given up. Excision of the wedge of the tarsus was done three times, and, though it looked pretty, was not useful. Excision of the astragalus was done in five cases, and with great success; it was easy, and the rectification was greater than after any other mode. Osteotomy above the ankle had also been done in ten cases, and with good results, but this had been superseded by Lund's operation.—Dr. WHITSON (Glasgow) supported the operation of tarsotomy, and showed two patients cured by excision of the cuboid.—Dr. GEORGE BUCHANAN (Glasgow) said that early cases might be forcibly moulded, but late cases with limbs curved and bones twisted out of place he had usually treated by tenotomy of the tendo Achillis, and section of the plantar fascia, muscles, and ligaments down to and opening up the talo-scaphoid joint. He had operated by Lund's method in one case, now in hospital, and the result was so far most satisfactory.—Mr. SYMONDS (Oxford) said he made in all cases a complete section of the bones at the point of greatest convexity of the deformity with chain saw and slides, one surface in the other, fixing in plaster-of-Paris for three months. The new callus thrown out made a firm arch. He reported a case of this operation in a child of six weeks.—Mr. NOBLE SMITH (London) considered that osteotomy was rarely required under ten or twelve years of age. All operative measures should be deferred till resistance of structures seemed to demand it. For early cases there should be moulding and fixation in plaster-of-Paris for eight or ten days.—Mr. LUND replied, and congratulated the Section on the usefulness of the discussion.

Mr. BERNARD ROTH (London) read a paper on Scoliosiometry, or an accurate and practical method of recording cases of lateral curvature of the spine, and showed on a patient the mode of applying his soft metal tapes.

Mr. C. B. KEETLEY (London) read a paper on Plastic Amputations of the Foot.

Mr. R. H. B. NICHOLSON (Hull) described a case of Double Pyosalpinx cured by aspiration.

Dr. W. H. MYERS (Fort Wayne, U.S.A.) made a few remarks on the Treatment of Acute Peritonitis following Laparotomy.

ANATOMY AND PHYSIOLOGY.

The Section of Anatomy and Physiology met on Wednesday, August 8th, in the Anatomy Class-room, at 10.30 A.M.

Professor JOHN CLELAND, M.D., LL.D., F.R.S., occupied the chair, and delivered the presidential address. After referring to the honour done him in electing him as President of this section, Professor Cleland, in the course of a brief address, dwelt upon the interest and importance of teratology as exemplifying the influence of natural laws working in unnatural or unusual circumstances. He referred to the possibility of grave deformities arising in some one part of the body through localised irritation, and especially to the influence of irritation in causing excessive proliferation at unusually early periods, and the formation of double monstrosities. These monstrosities might be classified under three heads: the abcranial, the abcaudal, and the combination of these in one. The relative frequency of polydactylism could be understood by consideration of the early development of the carpus and tarsus as compared with the time of elongation of the limbs. As modifications of environment modify individuals and races, so external agencies were accountable for the production of monstrosities. He pointed out how little reliance could be placed upon statements as to the influence of shock or of strong impressions on the mind of the pregnant female in giving rise to monstrosities. He showed, in illustration of this, an anncephalic monster whose deformity had been attributed by the parents to the effects produced upon the mother's mind by the peculiar appearance of a cervical vertebra of a horse, so painted as to resemble a clergyman with uplifted arms and head seated upon the trunk, and said that such deformity was attributable rather to dropsy of the cerebro-spinal axis setting in after section of the cerebro-spinal canal, with consequent obliteration of the cerebral vesicles. Thus monstrosities were not to be passed over as mere freaks of nature, but were valuable illustrations of the action of natural laws. Professor Cleland referred to his preparations, both human and comparative, normal, abnormal, and pathological, numbering 441 specimens, displayed in an adjoining room.—Professor STRUTHERS (Aberdeen) proposed a vote of thanks to Professor Cleland for his interesting paper, and referred to the importance of anatomy and physiology as a basis of medical and general scientific study.—Professor PETTIGREW also wished to thank Professor Cleland for his able paper.

Professor C. B. LOCKWOOD showed a series of microscopical preparations from the rabbit, illustrating the development of the Circulation and Respiration. They were arranged to show the development of the heart in the splanchno-pleura

in front of the general body cavity, its attachment to the pharynx by the meso-cardium posterius, and the gradual shutting off from the pleuro-peritoneal cavity of the pericardial sac. He traced further the development of the diaphragm, partly from the ventral aspect, partly from the dorsal, and also the development of the larger somatic and splanchnic veins.

Professor LOCKWOOD read for Mr. W. Arbuthnot Lane a paper on the Influence produced by Excessive Strain upon Muscles and Ligaments. Mr. Lane showed that many deviations from normal types were explicable upon mechanical grounds. Many experiments were going on in the modifications produced in the organism in the exercise of special trades, as in sailors, shoemakers, porters, &c.: how the scapula was modified in shape by the great development of bony tuberosities at the point of attachments of muscles subjected to special exercise, and similarly at the attachment of the deltoid to the humerus and of the soleus muscles to the tibia and fibula. So, too, we found more or less ossification in ligaments, more especially where they were subjected to great pressure, as in the ligamentum nuchæ.

Dr. A. M. PATERSON (Demonstrator of Anatomy, Owens College) read a paper on the Position of the Vertebrate Limb, considered in the light of its innervation and development. Dr. Paterson held that the nerves were alone to be regarded as of importance as evidence of original segmentation in an attempt to determine the position of the limbs as regards the vertebral column. He maintained that the limbs were inconstant in their position, and tended rather to be moved backwards than forwards upon the vertebral column, the position of the posterior limb being less constant than that of the anterior limb, and that with this change of position there might be other concurrent changes. He maintained also that the limbs are developed from the lateral and anterior thirds of the primary cylinder trunk.—A short discussion ensued, in which Dr. Mackay and Dr. Cleland took part.

Professor BENEDIKT (Vienna) read a paper on his Craniometric and Cephalometric systems, with Demonstrations of his method of applying them.

Mr. MACDONALD BROWN read a paper on the Construction of the Cardiac Ventricles in the Mammalia, with more special reference to the right ventricle, and its action in forcing the blood onwards into the pulmonary artery by pressure of its crescentic wall upon the wall of the left ventricle. He referred also to the position and function of the moderator band and its constancy in the human heart.—Professor STRUTHERS suspected that too much importance might be given to the moderator band from its teleological name. It might merely be a vestige of no special importance.—After some words by Professor Cleland, Mr. Macdonald Brown replied.

The proceedings on Thursday commenced with a paper by Professor CLELAND, entitled "The Nature of certain forms of Double Monstrosities." In the course of his remarks he described the various ways in which such monstrosities occur, and showed how cases of supernumerary limbs were to be interpreted. This paper, by the President of the Section, led up to a demonstration by Dr. MACDONALD BROWN, of the "double-bodied" boy "Lalloo." Dr. Brown also gave an interesting account of the case, and an opportunity was afterwards afforded those present of examining the boy for themselves.

Dr. BARLOW read a paper for Dr. B. W. Richardson on some Original Observations in Physiological Therapeutics made on the Fresh-water Jelly Fish.

Mr. BERRY HAYCRAFT gave the results of his recent Investigations on the Production of Taste and Smell.

Dr. ST. JOHN BROOKS read a paper on the Morphology of the Epitrochleo-anconeus.

This was followed by a paper, prepared by Mr. J. BERRY HAYCRAFT and Dr. E. W. CARLIEL conjointly, upon (1) Morphological Changes which occur in Blood during its Coagulation; (2) Demonstration of Human Blood retained in a fluid condition when suspended in castor oil. They pointed out the effect that solid substances have of stimulating the colourless corpuscles to amœboid movement, and argued that the coagulation of the blood was due to the action of the living rather than of the dead leucocyte.

Professor R. J. ANDERSON, M.D., read a paper on Pelvic Epiphyses, giving the results of his examination of specimens from a large variety of vertebrates.

Dr. BENJAMIN HOWARD (New York) gave a demonstration on the Hyoid Bone and its relations. He showed that the hyoid bone is the key to the raising of the epiglottis by its muscular and ligamentous connexions above with the lower jaw, and below with the larynx and epiglottis, and how by simply bending the head as far backwards as possible the epiglottis is raised, and a wide post-oral air way is opened between the nares and the larynx.

On Friday Dr. A. MELVILLE PATERSON read a paper on Congenital Diaphragmatic Hernia in an Infant, in the course of which he spoke of its relative frequency on the left side as compared with the right.—Professor LOCKWOOD thought that this might be explained in connexion with the development of the vitelline veins.

Dr. GREVILLE MACDONALD gave the results of his investigations on the Mechanics of the Nose as regards Respiration, Taste and Smell. He explained a simple form of apparatus devised by himself for testing changes in the heat and moisture of respired air, and advanced the view that the superior spongy bone had to do with the appreciation of flavours as the middle spongy bone has with smell.—Professor RUTHERFORD thought that the question as to the appreciation of sense of flavour or taste by the superior spongy bone deserved further investigation.—Professor CLELAND referred to the supply of Jacobson's organ in the sheep with branches from the olfactory nerve and from Meckel's ganglion.

Dr. A. SYMONS ECCLES read a paper on the Internal and External Temperature of the Human Body, as modified by Muscle Kneading, with Sphygmographic and Sphygmomanometric Records. The external temperature was at first raised and then fell, while the internal, which was at first slightly lowered, afterwards rose. Thus, on the whole, there was an approximation of external and internal temperatures. The pulse rate was lowered, and the sphygmomanometric readings at first rose and then showed a marked fall.—Professor RUTHERFORD thought the value of the observations would have been increased by noting the amount of CO_2 excreted during the experiments.

Dr. E. H. EZARD read a communication on a New Appearance in Medullated Nerve Fibre. When a medullated nerve fibre is treated with a 1 per cent. solution of osmic acid, and thereafter with glacial acetic acid, the darkened white substance of Schwann presents at first the appearance of a network, as if circular holes had been punched out of it; then the network becomes more open, and finally the dark substance entirely disappears. Dr. Ezard showed specimens demonstrating these changes. He held that the network is artificially produced.

Professor RUTHERFORD explained in detail, with the help of diagrams and models, his views as to the Structure and Mode of Contraction of Striated Muscular Fibre, referring to the differences of appearance seen in the muscle of the crab when in states (1) of physiological extension, (2) of relaxation, and (3) of contraction.—Professors McKendrick, Anderson, and Cleland made a few remarks upon various questions raised by Professor Rutherford's views.

Professor C. B. LOCKWOOD introduced a discussion on the Teaching of Anatomy. Defining anatomy as the science of the interpretation of the structure of living things, he claimed as a necessary part of its study biology, embryology, and histology. He held that mere cramming should be avoided, and that examinations should be made of real educational value. He wished to see the subject approached from a synthetical point of view, as rendering obscure points more intelligible to the student, illustrating his remarks by diagrams showing the development of the splenic and hepatic arteries. If diagrams were to be used, too much importance were not to be attached to them. An abundant supply of fresh material and numerous demonstrators were indispensable.—Professor STRUTHERS agreed in most points with Professor Lockwood, and thought that most of his remarks could be taken as describing the present mode of teaching anatomy in Scotland.—Professor RUTHERFORD, among other remarks, referred to the good work done in London schools, many of which were unendowed.—Dr. BROOKS commended the use of dissected specimens as an adjunct to actual dissection.—Dr. Mackay and Professors Anderson, Griffiths, and Cleland having spoken, Professor Lockwood briefly replied.

OBSTETRICS.

On Thursday, 9th inst., Dr. HALLIDAY CROOM (Edinburgh) opened the discussion on Obstructive Dysmenorrhœa and Sterility. He believed that in many cases dysmenorrhœa was due to constitutional states such as gout and rheumatism. He did not believe in obstructive sterility, but rather that the sterility was due to congestions of the endometrium, and that those cases where mechanical interference did good were cases in which the congested and otherwise unhealthy condition of the endometrium were relieved.—Dr. R. BARNES believed thoroughly in obstructive dysmenorrhœa causing sterility, and due both to atresic conditions and flexions of the canal. He believed that dysmenorrhœa and sterility were closely associated. Discission was the best treatment, without the after-use of intra-uterine stems. — Dr. DUKE (Dublin) thought that dilatation did good by allowing free discharge of fluids from the uterine cavity. — Dr. STEPHENSON (Aberdeen) believed that we had made very little progress in our knowledge of dysmenorrhœa, and he objected to mechanical interference. He urged the use of apiol as a valuable means of relief.—Dr. BYERS (Belfast) urged the view that opinions as to treatment differed, because men thought of different forms of disease. He quoted cases where mechanical interference seemed to cure the sterility.—Dr. AUST LAWRENCE (Bristol) believed in obstructive dysmenorrhœa, and cited cases where treatment seemed to have cured cases of this disease and sterility.—Dr. BRAITHWAITE (Leeds) believed he had met with many cases of obstructive dysmenorrhœa, and presented a specimen showing a pinhole cervical canal, where there had been no dysmenorrhœa. Probably the freedom from pain was due to the shortness of the stenotic part. He believed in very thorough dilatation, so thorough as to permit the index finger to pass into the uterine cavity.—Dr WALTER (Manchester) stated that the pain in connexion with obstructive dysmenorrhœa often came and went at different periods, and so led to a wrong diagnosis. He believed in treatment by mechanical means.—Dr. W. L. REID (Glasgow) believed more in obstructive dysmenorrhœa than in obstructive sterility. He coincided in the view that operative interference did good, but much more by improving the general condition of the uterus than by the simple dilatation of the cervical canal.—Dr. HEYWOOD SMITH (London) believed in obstructive dysmenorrhœa. He thought that simple dilatation was not of any lasting service, but that incision of the internal os followed by free dilatation is useful.—Dr. A. ROUTH (London) stated that a large number of cases of stenosis were associated with sterility, but dilatation simply was of little use unless followed by the wearing of an intra-uterine stem.—The PRESIDENT believed in obstructive dysmenorrhœa, and stated that the most common and most successful treatment was the mechanical.—Dr. CROOM concluded the discussion by stating that, while formerly he practised mechanical treatment, he did not do so now, and yet had quite as good results.

Dr. W. L. REID showed and described an instrument for the Rapid Dilatation of the Cervix Uteri. It consists of a graduated series of conical screws with prominent but rather blunt threads. He stated that where an organic stricture had to be overcome rapidly destruction of fibre must result, and claimed for the conical screw, carefully used and with antiseptic precautions, that it was a rapid, efficient, safe, and comparatively painless method.—Dr. DUKE (Dublin) showed a new two-bladed dilator for the rapid expansion of the cervical canal. It consists of two thin but powerful blades, which are expanded by a wedge being forced between their basal portions by means of a screw in the handle.—Dr. HEYWOOD SMITH did not favour any form of rapid dilatation owing to its danger.—Mrs. GARRETT ANDERSON believed in rapid dilatation and practised it constantly.—Dr. AUST LAWRENCE thought that rapid dilatation was dangerous, and that tents were far better, and, with antiseptic precautions, much safer.—Dr. IMLACH (Liverpool) believed that the dilators shown would be useful only when the canal was so large that there was no use for dilatation.—Dr. PARVIN (Philadelphia) believed in mechanical dilators, and thought Hegar's were the most useful.—Dr. WALTER showed his instruments for securing the broad ligaments during extirpation of the uterus per vaginam.—Drs. BRAITHWAITE and ROUTH made some remarks on the subject.

Dr. R. BARNES (London) read a paper on Analogies between Menstruation and Gestation and Puerpery, in their Physiological and Pathological Relations. He believed that certain forms of puerperal fever are due to materials generated in the patient's system, and that this is proved by the evidence seen in connexion with menstrual phenomena.—Dr. BRAITHWAITE discussed the question, and Dr. WARREN (Melbourne) stated that he found small clots remaining in the uterus produce marked poisoning, accompanied by fever.

The PRESIDENT then read a paper on the Rapid Curative Treatment of Cystitis in Women. He said it was a common and dangerous disease, and advised that, after the elimination of organic disease of the kidney and ureters, the thorough dilatation of the urethral canal, sufficient to permit of perfect bladder rest for a week or ten days, should be practised.—Dr. DUKE said he had seen a number of cases cured by the method suggested by Dr. Madden.—Dr. JESSOP (Leeds) stated that Weiss's dilator was found very useful in such cases, and that Mr. Teale of Leeds had introduced this treatment many years ago. — Dr. BOYD (Dublin) supported this method of treatment, and spoke to the after-management of such cases.—Dr. BYERS (Belfast) believed that some uterine affection was often at the root of the disease, and that treatment directed to the uterus would often suffice.—Dr. HEYWOOD SMITH (London) asked what amount of rapidity of dilatation was practised.—Dr. S. SLOAN (Glasgow) said that dilatation simply often perfectly served the purpose.—Dr. R. BARNES (London) said that malpositions of the uterus were often to blame for the irritability of the bladder.—Dr. HARRISON (Liverpool) said that great care in the use of a catheter was often of great service in such cases.—Dr. SMITH (Bolton) said belladonna was highly useful.—Dr. MORE MADDEN closed the discussion.

Dr. WALLACE (Liverpool) then read a note on three forms of Fallopian Disease: 1. Subinvolution (open tube). 2. Hypertrophy (open tube). 3. Complete Stenosis (Inflammatory). The Section afterwards adjourned.

The SECRETARY (Dr. W. L. Reid) read a translation of a paper by Dr. Apostoli on some novelties in the Electrotherapeutics of Gynæcology. He spoke, in the first place, of the relief of pain by galvano-puncture with negative and with positive electrodes of gold, especially in cases of perimetric inflammation accompanying fibroid tumours. In hæmorrhagic cases Dr. Apostoli used a special gelatinous electrode, also one of gas carbon. He next discussed the dosage of the current and the method of application, drawing special attention to the sensibility of the cervical tissue.—Dr. AVELING quoted Dr. Keith's condemnation of hysterectomy, and maintained that this method should be tried before having recourse to the knife. He read four cases in support. He described his method of measuring tumours, and exhibited an instrument. He also showed his electrode.—Dr. LAWRENCE (Bristol) spoke of a beginner's difficulties. He described his rheostat, electrodes, &c.—Sir SPENCER WELLS thought that in cases where there was a long pedicle surgical treatment was still advisable.—Dr. BRAITHWAITE described an extra-abdominal case.—Dr. IMLACH attacked the method; he wanted more results.—Dr. OLIVER (Newcastle) spoke in support of this form of treatment in cases after the menopause.—Dr. HEYWOOD SMITH removed the ovaries in such cases.—Dr. ROUTH saw relief of symptoms, but temporarily.—Mrs. GARRETT ANDERSON had been disappointed with the results.—Dr. EDIS had seen poor results. He still removed the ovaries, and got his patients much sooner out of hospital than those under Dr. Apostoli. — Dr. BELL (Glasgow) wanted the theory explained.—Dr. MARCUS (Paris) had seen good results as regards symptoms, but the treatment lasted long, as did also that of phthisis. — Dr. HARVEY (Calcutta) had seen a hundred of Dr. Apostoli's cases, with relief of symptoms, and in many with diminution of the tumour.—Dr. MORE MADDEN spoke of Dr. Cutter's work, and condemned spaying. He had treated many cases with good results, but was unable to keep his patients long enough in hospital.—Dr. APOSTOLI said the treatment was not radical, but removed symptoms; as cases vary, so must the treatment. He did not think that the treatment would be applicable to ovarian tumours.—Dr. AVELING thought the chief drawback was the time required.—Dr. LAWRENCE treated his cases as out-patients.

Dr. BERRY HART read a paper on a case of Cæsarean Section (Porro's modification). He thought the modifications of Sänger and Leopold had made the Cæsarean section the operation of the future. He chose the Porro modifica-

tion, as the woman did not wish to become pregnant again. He did not think peptonuria a contant consequence of labour.—Dr. MURDOCH CAMERON detailed a case of successful Cæsarean section. He used seven silk stitches for the uterine wound, and condemned the use of the drainage tube.—Dr. ROBERT BARNES (London) believed that Sänger's operation is, as a rule, the better, but approved of Porro's when the patient wished to avoid a future pregnancy.—Dr. IMLACH (Liverpool) asked what was recommended in cases in which the child was dead.—Dr. HEYWOOD SMITH asked why Dr. Cameron had not performed Porro's operation in his case.—Dr. DUKE (Dublin) asked why the child had not been put to the breast.—Drs. HART and CAMERON replied.

Mr. TRUAX (instrument maker, Chicago) then showed and demonstrated the use of a surgical pump, which could, by the use of various additional pieces of apparatus, be used for a great variety of surgical and medical purposes.

The proceedings of the Section were then brought to a close by a vote of thanks to the President, proposed by Dr. Leishman, and seconded by Dr. Robert Barnes.

PATHOLOGY.

On Wednesday Professor EDGAR CROOKSHANK made a communication on Tubercular Cows' Milk. He reported the examination of milk in the cases of two cows with undoubted tubercular disease. In each case the udder was affected, being indurated and nodular. The milk having been allowed to stand, a small quantity of the deposit was prepared on a cover-glass, and without difficulty abundant tubercular bacilli were found on staining. Tubercular lesions were discovered in the cows on examination after death. Some of the milk, having been mixed with other food, was given to rabbits, and after an interval of some months diarrhœa set in and death resulted, tubercular ulceration of the bowels and affection of the mesenteric glands being discovered post mortem. Dr. Crookshank regards the tubercular bacillus of the cow as identical with that found in man. In view of the fact that milk from tubercular udders must frequently come into the market, he considers that immediate legislation is demanded.—In reply to Dr. Joseph Coats, Dr. Crookshank said that the disease of the udder was not a mere local condition, but part of general tuberculosis. Its importance, however, consisted in the fact that if the udder was unaffected the bacilli were not found in the milk.—Mr. LOGAN drew attention to the fact that butchers were in the habit of sending meat from cattle which they knew to be tubercular into the market, and that danger might thus arise, especially from the inner surfaces of the ribs having been possibly implicated by extension of pulmonary mischief.—Dr. CROOKSHANK agreed in speaking of such conduct as general, and not prohibited. The virus would, however, be destroyed during the process of cooling. Such a safeguard did not exist in the case of milk, as it is usually consumed unboiled. In reply to Mr. Maylard, he stated further that it was taken for granted that boiling of the milk would destroy its harmful influence, but that this had not yet been definitely proved.—Mr. EDINGTON asked if there were any difference in size between the tubercular bacillus as found in bovine and human tuberculosis, and if it were possible that one might have been evolved from the other.—Professor CROOKSHANK stated that the opinion that there was such a difference in size, as held by Klein, was probably due to the fact that Klein had examined bovine tuberculosis only in sections. The bacillus as found in tubercular milk has quite the same size and appearance as that found in tubercular sputum. Inoculation experiments with sputum and milk gave the same lesions (and the same bacilli) in rabbits. Difference of opinion existing as to whether or not the pig is subject to tuberculosis, Professor Crookshank thought noteworthy a case in which he had an opportunity of making microscopical examination. The animal had had cough, constipation, discolouration of the skin, but no rise of temperature. Lesions were found after death which might to the naked eye have suggested lymphadenoma, but the microscope proved them by the presence of numerous typical bacilli to be tubercular.

Professor CROOKSHANK next read a paper upon Human and Bovine Actinomycoses, which he had studied for a number of years both at home and in Germany. Among the cases which he narrated was that of a heifer with a large growth in the parotid region, measuring eight inches by ten. It was discharging from several sinuses a quantity of yellowish muco-purulent matter, which on examination was found to contain grains of actinomycosis. The animal having been killed, the usual appearances in such cases were seen and the lungs (especially the left) showed nodules at the margins of the lobes and throughout their substance. These had the appearance of tubercular deposits, but were demonstrated microscopically to be actinomycotic. The kidneys, uterus, ovaries, and tongue were healthy. The animal having been said to be "one out of several," investigation was made, and the ailment found to be common in the fen-land, and called "wens," "stickfast," &c. It was said to be treated generally by caustic, and the animals were subsequently sent into the market; 8 per cent. were found to be so affected. Several other cases having been detailed, Professor Crookshank summarised his results as follows: Bovine actinomycosis is common in this country, especially in the fen districts. It occurs as wens or tumours in different parts of the body; it occurs in the lungs, as well as in the mouth and tongue. Unquestionably the disease is found also in man, but there are certain differences. In man there is a mycelium formed and easily demonstrated, whereas the "clubs" are found with difficulty; in animals, on the other hand, the "clubs" are easily demonstrated, but there is a tendency to calcareous degeneration rather than to the formation of the mycelium. The question may thus be raised: Do there exist two distinct organisms, or are these differences due to the difference in soil afforded by the human and the animal body? Questioned by Mr. Edington, Professor Crookshank said that he had made many attempts to cultivate the organism, but had not yet succeeded.

Professor CROOKSHANK then reported a series of investigations upon the occurrence of Anthrax in Swine. He said that, while it was admitted that pigs die after eating the offal from cattle which have died of anthrax, there has been much difference of opinion as to the cause of the pig's death, some affirming that it was due to septic poisoning. The bodies of such pigs, on being examined, are found to contain, in the very striking enlargement of the throat which characterises them, a great quantity of gelatinous subcutaneous infiltration. Their tonsils are found to be ulcerated, and, indeed, gangrenous. Such were the appearances in a pig which was caused by the speaker to be fed on offal from anthrax-affected cattle. Experiments were further made by the injection subcutaneously of equal parts of broth and blood from the spleen of cattle killed by anthrax. In such cases great infiltration took place in the throat or abdomen, according as the one or the other was chosen as the spot of injection. The animals died, and, on examination, there were found purplish patches on the liver, as well as local boss-like enlargements of the spleen. Similar results were obtained when the injection fluid was taken from guinea-pigs which had been killed by anthrax; and similar results also when the fluid was prepared from pure agar-agar cultivations, provided sufficient dose was given. From the pigs dying in the last series the organism was again taken, and caused anthrax in guinea-pigs. Confirmation of these results was obtained from a case in which it was positively known that the spleen of a cow which had had anthrax was eaten by certain pigs on the same farm. These latter gave the same appearances as in the other cases, especially the enlargements of the spleen. Bacilli were obtained from the organs, cultivated, and found to cause the disease in other animals. Pigs, both old and young, are thus undoubtedly susceptible to anthrax. In reply to Prof. Roy, it was added that all spontaneous cases hitherto studied had been apparently caused by the ingestion of offal, no other means of inoculation in such cases having been observed.—Prof. MACFADYEAN asked if there were any explanation of the difference in symptoms between anthrax as occurring in the pig and as occurring in other animals; also as to any difference in the period of inoculation.—As regards the symptoms in the pig, Prof. CROOKSHANK thought that the swelling in the throat, which was invariable in the pig, was probably due to the disease being caused by the ingestion of offal. The tonsils in such cases are found ulcerated or necrotic, and it may be here that the bacillus finds entrance. In the cases where the disease was induced by injection, the gelatinous infiltration and swelling did not take place invariably in the throat, but was determined by the position of the injection. In such cases the track of the needle is gangrenous, and there is great exudation around. The term of incubation

varies. In one case death occurred within twenty-four hours; in other cases after an interval of four or five days. Great stress must be laid upon a sufficient dose being administered. Failure in observing this may, perhaps, explain the difference of opinion which has prevailed upon the question of the communicability of anthrax to swine.

Mr. ALEXANDER EDINGTON (Edinburgh) subsequently gave a demonstration upon the Methods of Bacteriology, at the close of which an opportunity was afforded of examining the instruments and apparatus.

PUBLIC HEALTH.

On Friday, the 10th inst., the sitting commenced with a paper by Dr. TATHAM (Salford) on the Desirability of a General Extension of Compulsory Notification of Infectious Disease, with especial reference to a proposed system of Disease Registration. He said that he was convinced of the concurrent advantages of disease notification and hospital isolation, and argued that notification should be applicable to the whole country. He had obtained the co-operation of thirty-two of his colleagues in the public health service, and had maintained a system of disease registration on a small scale. The registration of infectious diseases, however, for the whole country was obviously a matter of State concern, and should be carried out by some central department, preferably the Local Government Board.

A discussion on the Disposal of Sewage was opened by Dr. JAS. B. RUSSELL (Glasgow). He said that in Glasgow this was a subject of the highest importance. In 1790 the first common sewers were formed, and in 1860 there were sixty miles of sewers. The Clyde was now not more offensive than it was forty years ago, although such a very large amount of sewage was discharged into it. This was due to the widening and deepening of the river, by which the sewage was carried at a much greater rate than formerly towards the sea. The dredging by the Clyde Trustees had also aided in the purification of the Clyde. Dr. Russell then described the various methods proposed for the proper disposal of Glasgow sewage, and detailed the reports of several commissions appointed for this purpose. He stated that one of the first questions to be investigated by the authorities of the extended municipal area of Glasgow would be this important subject.

Dr. CARPENTER (Croydon) discoursed also on the Disposal of Sewage. He submitted his well-known views upon this subject, and re-stated the series of propositions which he had brought under the notice of the International Congress in London in 1881. Briefly stated, they are: (1) That the application of the sewage of a watercloset town to land near dwelling houses is not injurious to the health of the inhabitants, provided the sewage be fresh and applied in an intermittent manner, and the effluent be capable of rapid movement from the irrigated fields; (2) that the effluent water is satisfactorily cleansed by the soil, if not less than an acre is provided for each 250 persons; (3) that vegetables grown are safe for food; (4) that neither parasitic nor infectious diseases are produced; (5) that the farming should be encouraged from a political economy point of view. The speaker proved the soundness of these propositions by the results of the sewage farm at Croydon, and earnestly recommended the same as applicable to all watercloset towns without exception. He felt sure that it would be more satisfactory when it was so utilised than for it to be sent into the Thames, the Mersey, or the Clyde.

Dr. C. R. DRYSDALE (London) read a paper upon the Berlin and Parisian Sewage Farms, and contended that the only rational way of treating the sewage of cities and restoring the purity of rivers was by agricultural utilisation on suitable soils and areas, as used in Berlin, Paris, Croydon, Birmingham, and elsewhere. The London Board of Works were making a great mistake, the tanks to be erected costing £1,000,000 and the chemicals &c. about £100,000 a year. Dublin and Glasgow had rivers which were a disgrace to civilisation. Dr. Drysdale then described the Paris and Berlin sewage farms, and urged that this method should be adopted in this country.

Mr. T. J. DYKE (Merthyr-Tydvil) communicated a paper on the Disposal of Sewage at Merthyr-Tydvil. In his absence it was read by Dr. Duncan. — Mr. BAILEY DENTON, C.E., adopted the method of Frankland, known as "downward intermittent filtration," in disposing of the sewage from Merthyr, Dowlais, &c. The work was finished in 1881, and since then from 100,000 to 300,000 gallons of the liquid strained from the sewage had daily passed over and through the soil of twenty acres of land. There had been no injury to health in carrying on the work; the land acted as well as ever in clarifying the liquid sewage; the effluent water was perfectly clear and colourless; there had been no "clogging" of the soil, no bogginess of the surface; and during 1886 and 1887 the work of the farm had been carried on at a profit.—Dr. MURRAY (Forfar) described the method of sewage disposal in Forfar. Both intermittent and surface filtration were used; on the land devoted to the former method cabbages, carrots, mangolds, and turnips were raised; on the latter grass and turnips in rotation. The financial results were satisfactory, and the death-rate had been lowered since the introduction of this method.—Dr. WHITELAW (Kirkintilloch) and the PRESIDENT described the manner in which the sewage of Kirkintilloch and Edinburgh were respectively disposed of. Both speakers strongly advocated the employment of filtration areas.

A discussion followed, in which Dr. Davis (Chicago), Colonel Jones, Mr. W. R. W. Smith, and Mr. Bateman (Norwich) took part. Dr. Russell briefly replied.

Dr. J. FRANCIS SUTHERLAND (Glasgow) read a paper on Hospital Administration. In Britain there were, he said, 650 hospitals, containing 38,000 beds, and maintained at a cost of not less than £1,700,000. The proportion of beds to the population in different cities, and the annual cost per bed, varied to a large extent. It was a notorious fact that many hospitals were largely in debt; in the London hospitals there was last year a deficiency of £100,000, which was partly met by selling out stock. In the next place, Dr. Sutherland showed that the accommodation was far short of what it should be; in large districts throughout the country even absent altogether. Hospitals should also be quite "free" to deserving sufferers. As a remedy for these and other defects in our hospital administration, the proposal was made that voluntary effort be assisted and encouraged by parliamentary grants, as in the case of training ships. For the better government of hospitals, and in the interests of economy, the present divided and expensive system should be replaced by the administration of a central bureau, which would be thoroughly representative in its character, and have under its control every hospital, voluntary or parochial. This bureau should be composed of urban and rural representatives from among the subscribers and from public bodies, and Crown representatives. The speaker urged the necessity for an inquiry into the present system by a Royal Commission, which would soon discover the weak points.

The Section afterwards rose, a vote of thanks having been previously passed to Dr. Littlejohn, the President.

DISEASES OF CHILDREN.

On Thursday, the 9th inst., the proceedings in this Section were devoted to a discussion on Rickets, opened by the PRESIDENT (Dr. Cheadle). In his opinion rickets was a general disease, and the various causes commonly assigned, such as insanitary surroundings &c., are all subsidiary to one chief cause—viz., bad feeding. Infants fed by hand are extremely liable to the disease, especially if fed on farinaceous diet. This is owing, not to the presence of starch, but to the absence of certain essential ingredients in the food. Dr. Cheadle insisted on the absence of fat in the food as the most essential factor in the causation, although he believed that the absence of nitrogenous substances and also of phosphate of lime had a considerable influence in the causation. He did not regard syphilis as having any essential bearing on the disease, though when present it would accentuate it. He supported his views with a very interesting reference to some experiences in regard to the rearing of young lions in the Zoological Gardens. The connexion of rickets with infantile scurvy, itself markedly a diet disease, was brought forward in aid of his conclusions, while he did not neglect to indicate that the occurrence of late rickets was difficult of explanation under his view. The enlargement of the liver and spleen said to occur in rickets he looked upon as by no means an essential part of the disease, but probably due to concurrence with syphilis. Treatment by food followed as a natural sequence. He believed rickety children were over-drugged, and he regarded milk and cream and raw meat as preferable to cod-liver oil and iron.—Dr. OGSTON (Aberdeen) introduced the surgical aspects of the subject, dealing mainly with flat-foot and spinal curvature.—Dr. RANKE (Munich) spoke

in support of the views of Dr. Cheadle, while Dr. A. JACOBI (New York) controverted them to some extent. He regarded the condition of the bloodvessels and of the heart in relation to congestive conditions as of more importance than the diet in causation, and in regard to treatment he expressed a strong conviction in favour of the beneficial effects of phosphorus administered in the pure form.—Dr. CARMICHAEL (Edinburgh) agreed with the views of Dr. Cheadle, and advocated inunction with cod-liver oil.—Dr. ASHBY (Manchester) did not accept the view that defective food was the cause of rickets. He believed rather that it was an inherited dyspepsia, which prevented the taking of proper food, that ought to be blamed. The enlargement of the spleen, he suggested, might be purely of an anæmic origin.—Mr. E. OWEN (London) strongly supported the opinion that rickets was due to improper food, and he specially instanced the prepared foods for infants. He then discussed various surgical points.—Dr. FINLAYSON made some interesting remarks on the occurrence of rickets in Glasgow.—Messrs. Pughe, Freer, and Parker also took part in the discussion, and Dr. Cheadle replied.

OPHTHALMOLOGY.

On Thursday, the 9th inst., Dr. GEORGE MACKAY read a paper, entitled "A Contribution to the study of Hemianopsia of Central Origin, with special reference to acquired Colour-blindness." After reviewing the five cases already published, and stating that in those cases the methods of examination were either incomplete or defective, he related the methods of examination he employed in the cases he has had an opportunity of examining, and showed his test objects.—The President, and Messrs. Hewetson, Benson, and Grossman took part in the discussion which followed, and Dr. Mackay suitably replied.

Mr. H. B. HEWETSON read a paper on General Neuroses having an Ophthalmic Origin.—Messrs. Carter, Bickerton, and the President took part in the discussion.

The other papers read were as follows: Sailors and their Eyesight, by Mr. T. H. Bickerton; Colour-blindness, with a Demonstration of New Tests, by Dr. Karl Grossman; Operation for opening the Sheath of the Optic Nerve for the relief of Pressure, by Mr. R. Brudenell Carter; the Value of the Cautery in the Treatment of Ulceration of the Cornea, by Mr. J. C. Renton; some cases of Conical Cornea treated by the Actual Cautery, by Mr. Rickard Williams; on the Use of Cocaine, by Mr. W. McKinlay.

Mr. Bickerton also showed a case of Unusual Corneal Opacity in Process of Recovery.

In the afternoon a number of the members of the Ophthalmological Section met at the Eye Infirmary, Berkeley-street, for the purpose of examining the large collection of scientific instruments contained in the classroom of the institution. The PRESIDENT gave an interesting demonstration of several instruments devised by himself and of use in ophthalmic practice. Amongst these the following may be mentioned: 1. A new self-registering perimeter. This instrument was devised for the purpose of utilising the colours of the spectrum-grating, and by means of it the relative intensity of a given colour sensation in the lateral parts of the field can be compared with that of the centre at the same time. The mechanism of registering is so arranged that the extent of either side of the field in any meridian can be quickly determined. 2. A portable ophthalmometer, illuminated with the electric light, and of about the same size as an ordinary refraction ophthalmoscope. With this little instrument the curvature of the cornea can be measured very rapidly, and it was devised with special reference to the detection of astigmatism after the operation of cataract extraction. 3. A modification of Mr. Carter's perimeter for determining the field of fixation in the horizontal meridian. Two white discs travelling on the arm of the perimeter are so arranged that, when one is fixed by the yellow spot, the other is over the optic nerve entrance, and consequently remains invisible until the limit of the field of fixation is reached. A number of microscopic sections were also exhibited, as well as the large collection of pathological and anatomical specimens contained in the Infirmary Museum. At the close of the meeting Dr. Reid performed several cataract extractions by the combined method, both with superior and inferior corneal section. In every case antiseptic precautions were used. The demonstration lasted for two hours, and formed by no means the least interesting part of the work of the section.

On Friday (the President in the chair), the following papers were read and discussed: (1) On the Treatment of Entropion and Trichiasis by the Transplantation of Buccal Mucous Membrane, and (2) Hyalitis Punctata, by Mr. A. H. Beason; (3) On the Treatment of Symblepharon by Transplantation of Mucous Membrane from the Lip, by Dr. T. S. Meighan; (4) Chronic Nasal Catarrh as a Reflex Cause of Accommodative Asthenopia, by Dr. P. W. Maxwell. Dr. Karl Grossman showed microscopical specimens of Argyria of the Conjunctiva, and of a Cavernous Sarcoma of the Choroid. On the motion of Dr. Brailey, London, a vote of thanks was awarded to Dr. Reid, the President of the Section, and the proceedings terminated.

PHARMACOLOGY AND THERAPEUTICS.

This Section met on Wednesday, when Dr. JAMES MORTON, the President, delivered his address.

Professor THEODORE CASH made some remarks on Carbolic Acid, Antipyrin, Antifebrin, and their Allies, especially as regards their antipyretic, analgesic, and antiseptic actions.

A valuable paper by Dr. DUJARDIN-BEAUMETZ on the Phenacetine was then presented, a translation of it being read by one of the secretaries. It was pointed out that there are three phenacetines (or acetphenetidines)—the meta-, para-, and ortho-acetphenetidine. The first possesses no therapeutic properties, while the second is more powerful and satisfactory than the third. The history of the drug was then discussed, and its physical and chemical properties noticed. In investigating the physiological action of the agent, its insolubility was found to hinder its subcutaneous administration, and rendered experimentation on animals difficult. It was definitely made out, however, that if phenacetine is toxic in character at all, it must be so in but a very slight degree. Therapeutically the phenacetines have a double action. They lower temperature (especially in pyrexia) and soothe pain. In fever half a gramme lowers the temperature from 1° to 2° C., the effect lasting usually about four hours, though sometimes longer. Abundant sweating is produced, and often a sensation of collapse. Phenacetine in fevers shows itself superior to antipyrin and acetanilid in producing marked antithermic effects without toxic phenomena. But it is as an analgesic that the drug outrivals these its predecessors; while it is in this respect quite as powerful as antipyrin or acetanilid, it does not cause the pain in the stomach or the scarlatiniform rash of the former, nor does it give rise to the cyanosis of the latter. He had given it for months in daily quantities of from one to two grammes, and had never observed any bad effect. He had used it for the relief of every form of pain (neuralgias, migraine, rheumatic pains, muscular rheumatism, acute articular rheumatism, the lightning pains of tabes, &c.), and always with the best results. In hysteria and hysterical pains it answers better than bromides, and it procures sleep in nervous insomnia. Phenacetine is to be regarded as a narcotic as well as an analgesic, a depressor of the excitability of the medulla. The dose of phenacetine (the para-acetphenetidine) is one to two grammes daily, given in single doses of half to one gramme. It is best given in *cachets*. M. Dujardin-Beaumetz concluded as follows:—1. In the phenacetines we have excellent antihyperthermic and analgesic remedies. 2. Of the three, two only possess therapeutic properties: para- and ortho-acetphenetidine. 3. The ortho-acetphenetidine must be given in rather larger doses than the para-salt; the medium dose of the latter is from 1·5 gramme to 2 grammes per day. 4. These two salts seem to be devoid of toxic properties. 5. They are powerful antithermics and very active analgesics, which ought to be substituted for antipyrin for the following reasons: (1) because they are non-toxic; (2) because they act in doses one-half smaller; (3) because they are one-half cheaper; (4) because, finally, there is no monopoly in their manufacture.—Professor LEECH (Manchester) considered that the injurious influence occasionally produced by the dehydroxyle compounds would prevent their coming into general use as antipyretics, the more newly introduced substances, antipyrin and antifebrin, being more safe and at the same time more powerful.—Dr. A. D. MACDONALD (Liverpool) said that on first learning anything of the germ theory, in 1879, he had caught at the principle of the antiseptic treatment of zymotic diseases; and, after administering carbolic acid internally in scarlet fever and whooping-cough, he had indicated his views in a

short article in the *Edinburgh Medical Journal* of September, 1881. Then and now he held (1) that antisepsis is the rational principle of treating all germ diseases; (2) that it is our duty to discover the antiseptic substance which is most antagonistic to the micro-organism of each disease; (3) that we cannot sterilise the human organism, but, by appropriate antisepsis, we may lower the vitality of the disease germs and prevent poisoning of the organism by the germs' excrement.—Dr. ILLINGWORTH (Accrington) said that the action of antipyretics, such as antipyrin, is to prevent the formation of fibrin. This is proved by the cyanosis induced by the drugs and by the reduction of oxyhæmoglobin. These drugs should, therefore, never be used in diseases associated with diminution of fibrin—e.g., typhoid, and all germ diseases. It is only safe to give it in cases of pyrexia due to catarrhal causes.—Dr. WILBERFORCE SMITH remarked that the action of disinfectants in diseases caused, or probably caused, by micro-organisms was of great interest. We must go outside the indiscriminate use of carbolic acid or other powerful substances, which, to destroy micro-organisms in the blood or deep tissues, must go near to destroying the blood and tissues themselves. Quinine acts specifically on the blood and spleen of persons even when not affected with malarious fever. The organism recently described as present in ague acts, so to speak, on the same platform. Mercury and syphilis, in like manner, naturally act on corresponding tissue—skin, mucous membrane, and bone.—Dr. R. KIRK (Glasgow) had found that in cases of pneumonia, typhoid fever, and general febrile conditions, with a temperature of 103° or 104°, carbolic acid might be given with absolute safety in doses of four grains every two hours, until the temperature fell to 100° or 101°. In these cases, when the temperature was reduced below 102° by the drug, he invariably found that the general *bien-être* and comfort of the patient were much improved, and, as he believed, his chances of recovery much enhanced.—Dr. SIDNEY MARTIN was interested in the observation that antipyrin in some cases produced fever instead of reducing it, because he had found the same in some experiments on the action of the active principle (a globulin) of the jequirity: with a large dose in pigeons, simply a great depression of temperature occurred; with a small dose, the temperature sometimes rose one or two degrees before falling. With regard to the analgesic action of antipyrin, Dr. Martin had found the drug of great service in relieving the pain of aneurysm; but, owing to the large amount of liquid required to be given hypodermically, ecchymosis, abscess, and scarring may result locally, unless the liquid be gently rubbed away after injection.—Dr. RALPH STOCKMAN (Edinburgh University) then read a paper on the Coca Alkaloids.

On Thursday two cases of Xeroderma Pigmentosum, presenting peculiar features, were shown, in the absence of Dr. W. Allan Jamieson, Edinburgh, by Mr. Hugh JAMIESON, M.B., his clinical assistant. The following are short notes of the cases. R. E——, aged fifteen, a stout lad, had been under observation for more than three years. Father, mother, and nine brothers and sisters were healthy. Since the age of three years he had been subject to an eruption, affecting solely the uncovered parts of the body, which commenced to appear about the middle of February in each year, and continued with intermissions and exacerbations until the end of September. From then till the following February he remained free. At the season when the complaint recurs, or when a fresh outbreak threatens, a feeling of chilliness comes on, his face swells and turns red; the redness, however, is soon restricted to individual blotches, on which flat vesicles form, from a pea to a sixpence in size, the redness persisting as an inflammatory areola round each. The centre of the vesicle now assumes a dark reddish-brown, and finally dries up, while the edges continue vesicular, in this resembling a vesicating erythema multiforme, or hydroa. Some blisters rupture, and their contents form dry, thick crusts, often blood-stained, greenish, or black, which conceal an ulcer. From the first appearance of a crop till the crusts have fallen off and the skin beneath has cicatrised, a period of three weeks may elapse. This is succeeded by a short interval of rest, or a fresh crop may develop before the previous blisters have subsided into quiescence. The face all over the ears, especially the margin of the auricle and the backs of the hands, are the parts principally attacked, but the nape of the neck suffers to some extent, and when he was a boy, wearing short trousers and socks, similar blotches and blisters formed on the exposed part of the leg, and some white smooth scars are still discoverable there. As a result of these repeated attacks the cheeks and backs of the hands and the ears are much disfigured by large scars, smooth and glossy. On the temples and between the scars on the face there are irregular-shaped areas of brown or yellowish-brown staining, and one or two telangiectases can be found when carefully looked for. So far no watery tumours or new formations have appeared. The second case was a much milder one, having lasted a shorter time. G. T——, aged eighteen, born and still resident in the country. Father and mother and ten brothers and sisters healthy. He is a clear-complexioned ruddy lad. At the age of thirteen the attacks of which he complains began and have recurred every year since. He came to the Royal Infirmary in the middle of May, 1888. In April, earlier in a bright, later in a dull spring, his ears swell, turn red, and blisters form on them, particularly attacking the margins of the auricle. These blisters break and leave crusted excoriations, which heal slowly and are succeeded by scars. Fresh blisters form at intervals all through the summer, but cease to be produced about the end of September. During the winter the ears sometimes swell, but no vesicles form. On the cheeks, backs of the hands, and nape of the neck, round, small, isolated vesicles develop, each surrounded by a narrow red areola, the remains of a red blotch which had preceded the vesicle. These vesicles are numerous upon the cheeks, less so in the other situations. In all the situations named white scars are to be seen left behind by previous attacks. The lad has some ordinary freckles on the face, but there are as yet no patches of pigmentation and no telangiectases. These cases are allied to those formerly described by other observers by the localisation, limited to parts of the surface exposed to light, by the eruption of red blotches, and by the production of cicatrices, and in the more advanced cases by atrophy of the skin, brown pigmentation, and telangiectases. They differ in the fact that freckle-like staining did not occur early or primarily, that the prominent lesions were vesicular, and that in both the ears suffered most. Light and not excessive heat seems the principal exciting cause, acting on a latent but unknown predisposition; and the lessened power of the sun's rays in this northern attitude may perhaps explain the difference in the primary lesions and the variations from the characters described by others.—Mr. MALCOLM MORRIS regetted that Mr. Jamieson was not present to give more information about the cases. In the absence of microscopic specimens it was impossible to make a diagnosis. At present there was no sign of epitheliomatous change, and until that showed itself it was speculative to call the cases xeroderma pigmentosum, or Kaposi's disease.—Dr. BROOKE (Manchester) doubted very much whether the second case (G. T——) was really one of xeroderma pigmentosum. There were no ephilides, no atrophy except from suppurative lesions, and no telangiectases. The lesions consisted in this case primarily of vesicles (now affecting the ears only) which rapidly ulcerated and led to obstinate ulceration and pock-like scarring.—Dr. C. R. DRYSDALE (London) said that he was inclined to think that the case brought before the Section as one of Kaposi's disease was merely an example of acne caused by the action of sun and heat.

Dr. SHOEMAKER'S paper on Beta-naphthol was read by title. It referred to beta-naphthol as an entirely innocuous substance in the quantities in which it is usually prescribed, and stated that the much-praised hydro-naphthol is simply an impure beta-naphthol.

Dr. C. R. DRYSDALE then made some remarks on the so-called Abortive Treatment of Sypbilis and on Alcohol as a Therapeutic Agent.

Mr. BRINDLEY JAMES then read a paper on the treatment of Scabies by a summary and radical method similar to that adopted in the St. Louis Hospital in Paris. He described in detail the preparation of several ointments largely employed in such cases.

Professor T. FRASER then read a paper on the relative value of Codeine, Morphine, and Atropine in Diabetes Mellitus, in which he drew attention to the close resemblance, both chemically and physiologically, of codeine to morphine.—Dr. WILBERFORCE SMITH referred to the idiosyncrasies which affect the result of opiates upon the general health. Had Professor Fraser satisfied himself from a sufficiently large number of cases that there was no adequate ground for the commonly received opinion

that codeine was less likely than morphine to prove disturbing?

Dr. A. D. MACDONALD (Liverpool) reported three cases of poisoning: (1) Suicidal attempt by swallowing "twopennyworth of laudanum." Injection of apomorphine hydrochlorate and coffee by the stomach brought the patient round. (2) A woman stated she had swallowed three grains of morphia, but showed no symptom of morphia poisoning. An emetic prevented further statements of a similar kind. (3) A woman took strychnine in the form of vermin killer. Apomorphine was given hypodermically, and chloroform by inhalation; half an ounce of bromide of potassium with twenty grains of chloral were also given. The patient recovered.

Dr. R. DOUGLAS KERR read a paper on the Thermal Treatment after Acute Rheumatism, with a short outline of the system pursued at Bath.

Dr. A. R. COLDSTREAM read a paper on Florence as a Health Resort. He first gave an account of the climate, the water supply of Florence, and drainage, which is not perfectly satisfactory. It is not suitable for chest or throat ailments. Phthisis is very common among the Florentines. Articular or muscular rheumatism, acute or chronic, is not the kind of case for Florence. Patients should arrive in the middle of September; earlier than this it is too hot. Until the end of October the weather is clear and cold. November and December are wet. January is bright and sunshiny, with occasionally snow. There are cold winds from the north in January, February, and March. April and May are the best months, and in June it becomes warm.

Dr. R. B. MACPHERSON then read a paper on the Want of Uniformity in Strength of Medicinal Substances. The author pointed out the desirability of remedies, especially the more active ones, being presented to the physician of definite and uniform strength. Though this principle is sufficiently recognised in the Pharmacopœia, he is strongly of opinion that, in reality, it is not attained to such a degree as it might be. Several interesting examples were cited of drugs which exhibit great variations in the proportions of active principle contained in them. The investigation carried out by Dr. Seaton and Mr. Otto Hehner was referred to, in which, out of fifty prescriptions sent out to various shops in the parish of Chelsea, no fewer than seventeen were incorrectly dispensed, though none were scheduled as incorrect if the chief constituent proved to be within 10 per cent. of the amount ordered.—In the brief discussion which followed, Dr. R. STOCKMAN thought that Dr. Macpherson had gone too far in denouncing medicinal substances as being so generally impure. He had for five or six years tested drugs extensively, and it was the rarest thing to find an impurity or adulteration, especially in mineral substances. The vegetable preparations were also very generally standardised, especially those of opium. With regard to vegetable preparations, it was much more difficult to obtain uniformity of strength.

Dr. C. R. ILLINGWORTH (Accrington) then read a paper on the Medicinal Treatment of Acute Diseases of the Organs of Respiration.

In closing the programme of the section, Dr. Cash, then in the chair, spoke of the value of many of the communications made in the Section, and the importance of the discussion following them. The Section was, he said, one growing in importance and favour, but it did not as yet hold the place amongst the Sections to which it was entitled. Many papers, he remarked, were read in other sections which were clearly the property of this one; and he hoped that, with the recognition of this fact, and with the increase of the contributions on pharmacology and therapeutics, the success and utility of the Section would be greatly increased.

On Friday Dr. STRETCH DOWSE (London) gave a demonstration on a patient of the details of Massage. He described and demonstrated the three processes, *effleurage*, *pétrissage*, and *tapotement*.

LARYNGOLOGY.

On Thursday, 9th inst., Dr. MACINTYRE (Glasgow) introduced the discussion on Nasal Stenosis, and entered into the symptoms, pathology, and treatment of simple catarrh of the turbinated bones, to which he confined his remarks. He also entered into the question of reflex neuroses, giving his experience of these. He insisted on the necessity of prophylaxis, a question of great importance to the general practitioner, and on constitutional as well as local treatment, referring to the use of the galvano-cautery, which he largely employed. He showed a number of instruments devised by himself for these purposes, as well as a switch-table for heating and lighting as required in diseases of the throat. In conclusion, the subject of necrosing ethmoiditis was discussed.—Mr. CRESSWELL BABER (Brighton), who followed, laid stress on the effects of nasal stenosis on the physiognomy, voice, and chest, and the senses of hearing and smell. In the treatment, he recommended for mucous polypi their removal with the cold snare and galvano-cauterisation, and for adenoid vegetations removal with the finger-nail or forceps.

Dr. DUNDAS GRANT next read a paper entitled "Two Hundred recent Cases of Nasal Obstruction." He pointed to the frequent coincidences of disturbances in the region of the throat, ear, and nervous system, and their general disappearance on the removal of the obstruction. He exhibited several instruments employed by him in treatment, and advocated the use of the galvano-cautery snare in preference to the cold snare, as causing less pain. A discussion followed, in which Drs. Stoker, Hunt, Hodgkinson, Roe, Hall, Spicer, Newman, and McBride, took part. The majority favoured the use of the cold snare in the removal of mucous polypi, although all recommended the destruction of the base with some agent which would prevent return. To secure this it was necessary to keep the patient under observation for some time after operation.—Drs. Macintyre, Baber, and Grant having replied, the President summed up the discussion in a few well-chosen remarks.

The other papers read were: Remarks on the Pathology of Echindrosis of the Triangular Cartilage, with a new operation, by Dr. Greville Macdonald (London); Hay Fever and its Allied Conditions, by Dr. Peter McBride; Account of a Case of Tumour of the Naso-pharynx, by Dr. R. McKenzie Johnston; Remarks on the Removal of Naso-pharyngeal Polypus, with specimen, by Dr. Christopher Lewis; Cases of Fibro-mucous Polypus of the Naso-Pharynx, by Dr. C. Warden.

On Friday Dr. PERCY KIDD (London) opened the discussion on Hæmorrhages from the Pharynx and Larynx, and said that his opinion was that, apart from ulcerating carcinoma, suppuration, and traumatism, hæmorrhage from the pharynx and larynx is very uncommon, nearly always slight, and practically devoid of importance. In most cases of so-called hæmorrhage from the throat, the larynx and pharynx are not actually concerned, the blood coming from the lung or from the cavity of the nose or mouth.

Dr. HODGKINSON (Manchester) next read a paper, and stated that hæmorrhage was of importance partly on account of its moral effect, which was great, but chiefly as an indication of serious organic disease. He spoke of the difficulty of truly interpreting the various signs and symptoms—firstly, because small hæmorrhages from the lungs occur without giving evidence to us by thermal or stethoscopic examination; secondly, the anatomical relationship of the parts in question are so close that blood easily passes from one region to the other. In doubtful cases it is necessary to enjoin precautions necessitated by pulmonary lesions, rather than to conclude it to be from the throat.—A discussion followed.

The other papers read were: Some Unusual Forms of Laryngeal Neurosis, by Dr. Ernest Jacob; a Case of Lupus Vulgaris of the Upper Respiratory Tract, with Polypus (Lupus) of the Larynx, by Dr. R. H. Spicer; also by the same gentleman, Clinical and Pathological Observations in Affections of the Tonsils (Faucial, Lingual, and Pharyngeal), in the light of recent views as to their functions; Notes on Tonsillitis and Tonsillotomy, by Dr. Christopher Lewis; Dr. T. Middleman Hunt on Acute Epiglottitis, a question of Nomenclature.

Dr. SEMON, at the end of the day's sitting, congratulated the members on the successful way in which the meetings had been conducted. He thought much valuable information had been obtained by each from the discussions which had been so thoroughly and enthusiastically taken up. He thought that this Section had now fully established its claim to be a distinct and separate one.

Votes of thanks to the President and secretaries closed the business.

THE MUSEUM.

The Annual Museum had the advantage of being beneath the same roof as the meeting-places of the Sections and general assemblies. It consisted of six departments: A, Foods and Drugs; B, Pathology; C, Anatomy; D, Physiology; E, Instruments and Books; F, Sanitation. Amongst

the exhibits in Section A were collections of drugs &c. by Messrs. Allen and Hanbury, Burroughs, Wellcome, and Co., T. Christy and Co., Corbyn, Stacey, and Co., Evans, Sons, and Co., Ferris, Boorne, Townsend, and Boucher, Glasgow Apothecaries' Company, C. Green and Co., C. J. Hewlett and Sons, Lorimer and Co., J. Richardson and Co., Savory and Moore, W. H. Schieffelin and Co., W. R. Warner and Co., and others. In Section B, Professor G. Buchanan exhibited calculi removed by lithotomy and lithotrity; Dr. H. C. Cameron, calculi and other specimens; Mr. W. Cathcart, a series of specimens illustrative of tubercular synovitis of the knee; Dr. J. Coats, a series of specimens of embolism and aneurysm of cerebral vessels, another series of tumours of the brain, and an extensive collection of uterine and ovarian tumours; Mr. A. Edington of Edinburgh showed a complete series of cultures of micro-organisms, and Mr. Maylard of Glasgow had similar preparations. Dr. S. Man, Mr. Stuart Nairne, Dr. Mackie Whyte, Dr. D. Fraser, and Mr. T. W. Nunn showed various specimens; whilst Dr. Newman exhibited a series of specimens of diseases of the kidney; Dr. Beavan Rake, of leprosy; Dr. Lindsay Steven, of diseases of the heart; Drs. Norris Wolfenden and Sidney Martin, of laryngeal growths. In Section C, anatomical preparations and casts were shown by Dr. Bowles, Professor Chiene, Professor Hamilton, Mr. W. A. Lane, Dr. Macintyre, Dr. Paterson, and Dr. Reid. In Section D, microscopical and bacteriological instruments and appliances were shown by Messrs. R. and J. Beck, H. Crouch, W. Hume (Edinburgh), Ross and Co., Jas. White (Glasgow), and A. Fraser (Edinburgh); whilst Dr. Carlier, Demonstrator of Physiology at the University of Edinburgh, exhibited a series of normal tissues and organs. In Section E, instruments &c. were shown by many firms, including Arnold and Sons, J. Coxeter and Son, Down Bros., Ferris, Boorne, Townsend, and Boucher, J. Gardner, W. B. Hilliard and Sons, Lynch and Co., Mayer and Meltzer, Pickard and Curry, K. Schall, and J. Weiss and Son; whilst medical literature was well represented in the complete collections of new works shown by Messrs. Holmes (Glasgow), H. K. Lewis (London), J. Maclehose and Sons (Glasgow), Macmillan and Co. (London), Young J. Pentland (Edinburgh), G. Redway (London), and A. Stenhouse (Glasgow). In Section F, numerous sanitary appliances and inventions were exhibited, this collection being arranged in a marquee erected in the quadrangle. A complete catalogue of the museum was given to each member, who also received a Handbook to the Medical Institutions of Glasgow, which had been specially prepared in view of this meeting.

THE BOWER AND KEATES INDEMNITY FUND.

THE following statement by the Committee of the above Fund has been sent to us for publication:—

The case of Messrs. Bower and Keates was brought to the notice of the profession by a circular sent out in December, 1883, to all medical practitioners in Great Britain and Ireland, whose names appeared in Messrs. Churchill's Medical Directory for that year. The circular stated that on Aug. 31st, 1882, a child was suffering from sporadic laryngitis, and suffocation was impending. With the consent of the parents tracheotomy was performed by Dr. Bower, assisted by Mr. Keates. The operation was done skilfully and successfully, the child surviving for twenty-four hours, and subsequently dying of the further effects of the disease. A civil action was afterwards brought against these gentlemen by the father of the child for allowing him to clear the tracheotomy tube by suction in order to avert the impending death of his child. The jury disagreed on this trial, and it is in evidence on this occasion that the parents expressed their satisfaction with the treatment which their child had received. Failing in this action, the parents brought a criminal prosecution against Dr. Bower and Mr. Keates, and the mother of the child on Sept. 11th, 1883, swore an information before the sitting magistrate at the Lambeth Police-court, charging them with the manslaughter of the child. When Dr. Bower and Mr. Keates appeared to answer this charge, they found, to their astonishment, that it was adopted and pressed against them by the Public Prosecutor. Amongst other grave consequences of the intervention of the Public Prosecutor these two should be noticed—namely (1), that these gentlemen, though charged as criminals, could not bring an action for malicious prosecution; and (2) that they were debarred the usual right of claiming payment of their expenses from those who had so unjustly prosecuted them.

It was felt that a mere verbal expression of sympathy with these gentlemen would not under the circumstances be sufficient, seeing that they had incurred legal expenses estimated at nearly £1000. It was in view of the propriety of aiding Dr. Bower and Mr. Keates in this matter that the following resolution was passed at a meeting held at Sir William Jenner's residence on Monday, Dec. 10th, 1883: "That a committee be formed for the purpose of collecting subscriptions to defray the legal expenses incurred by Dr. Bower and Mr. Keates in their defence from the charges recently brought against them, and of preparing a statement by which the subscribers may express their sympathy with those gentlemen, and their conviction that the treatment of the case for which they were prosecuted was right." The circular was signed by Sir William Jenner, Sir James Paget, Dr. Richard Quain, Mr. John Marshall, Dr. J. M. Bright, Mr. Thomas Bryant, Dr. Wilson Fox, Dr. J. Grey Glover, Mr. Jonathan Hutchinson, Mr. J. T. Jackson, Dr. Walter Moxon, Mr. Sidney Turner, Dr. F. A. Mahomed, and Dr. R. W. Burnet. So hearty was the response to this appeal that within a week the required sum was subscribed, and before the list could be closed £1726 had been received from 1954 subscribers.

The committee hoped to have wound up the business with which they were entrusted at a much earlier date, but great delay was entailed by the fact that a new trial was threatened, and that difficulties were put in the way of having the costs taxed. The mere legal costs, as certified by the taxing master, amounted to £931 10s. 11*d.*, and that sum was paid over to Messrs. Bower and Keates.

Some months ago the committee, having paid all costs and other expenses of the fund, found that they had a balance of about £500. They issued a circular to all the subscribers, stating that it was proposed to give part of this sum to assist several similar deserving cases, on behalf of which application had been made, and to divide the surplus amongst medical charities; but that if any subscriber objected to these proposals, he could receive back the proportion of his subscription on applying to the hon. secretary. The majority of the replies received were in favour of the distribution suggested by the committee, and they have acted accordingly, giving £150 to Mr. Ralph Hodgson, late of Lewisham, who successfully defended himself from a charge of indecent assault at an expense of about £500, £50 towards the expenses of the defendants in the case of Gibson and wife *v.* Jeffries and Hills, £50 to Dr. Brown in the case of Lennard *v.* Brown and others, and £50 to Dr. West Symes in the case of Moss *v.* West Symes. The balance the committee have distributed between the British Medical Benevolent Fund, the Royal Medical Benevolent Fund Society of Ireland, the Royal Medical Benevolent College, Epsom, and the Society for the Relief of Widows and Orphans of Medical Men.

The committee cannot close this statement without a brief reference to the lamented deaths of Dr. Wilson Fox, Dr. Moxon, and Dr. Mahomed, who to a large extent initiated the movement which they did not live to see carried out, but to which they zealously contributed by their exertions so long as their valuable lives were spared.

(Signed) WILLIAM JENNER, Chairman.
RICHARD QUAIN, Treasurer.
August, 1888. R. W. BURNET, Hon. Sec.

"AN EASY METHOD FOR PRODUCING LARGE ANATOMICAL DIAGRAMS."

To the Editors of THE LANCET.

SIRS,—There is a simpler method than that suggested by your correspondent, Mr. Thomas, for enlarging drawings for lecture purposes—viz., the substitution of gelatine films, which are easily obtainable, for the mica sheets covered with varnish which he recommends. These cost next to nothing, are always ready, and the surface is easily drawn on by a pen and ordinary or Indian ink. The drawing board bearing the paper is best hung on the wall. It is easy by this method to obtain an outline of a most complicated

drawing in a few minutes. I generally use a "Silber" argand gas-burner in the lantern as more manageable than the three-wicked oil-lamp. I do not think it is generally known by medical and other lecturers that lantern slides can be shown without darkening the room if only the screen be shaded, and a disc of not more than five feet diameter be used. A "blow-through" oxyhydrogen jet is very easy to manage, and the lantern can be placed on the lecture-table and manipulated by the lecturer. Good diagrams are very expensive, and the paper alone costs nearly as much as a photographed lantern slide.

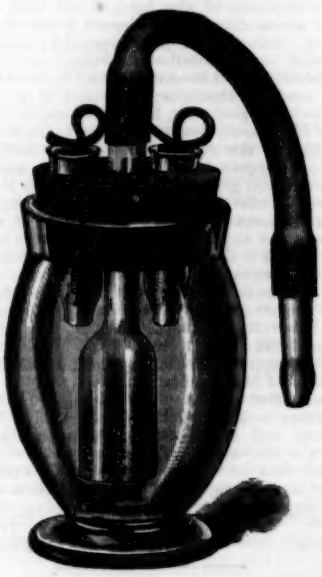
I am, Sirs, yours faithfully,

Leeds, Aug., 1888. ERNEST H. JACOB, M.D.

New Inventions.

GODFREY'S PATENT CHLORIDE OF AMMONIUM INHALER.

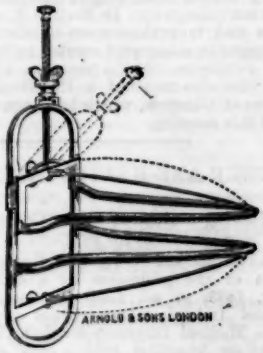
THE vapour of chloride of ammonium has recently been largely employed in the treatment of catarrh of the mucous membrane of the ear, nose, and throat, and it has also been used in bronchitis, asthma, and hay fever. Hitherto there has been some difficulty in arranging the conditions which shall give a plentiful cloud of chloride of ammonium in a neutral state, excess of acid or of ammonia requiring careful removal. From the accompanying illustration it will be seen that by an exceedingly simple arrangement a perfectly neutral cloud is obtained. The inhaler consists essentially of three tubes passing through the indiarubber



cork which closes the inhaler bottle. The centre bell glass is lightly plugged with a piece of sponge moistened with cold water; the two smaller tubes contain cylinders of a porous substance on protected wire-holders, and are charged by being dipped respectively into hydrochloric acid and ammonia. Upon suction being exerted at the mouth-piece, fumes of these two fluids pass into the inhaler and mingle and combine chemically, giving rise to dense white fumes of chloride of ammonium. Inhalation being continued, these fumes are necessarily drawn through the centre bell tube into the air passages, excess of acid or of alkali being arrested by the moistened sponge. We have carefully tested the inhaler, and find that the resulting fumes are completely devoid of any irritating or offensive properties. The body of the inhaler containing no water, any aromatic volatile substance may be introduced as desired. The inhaler is supplied in a neat cedar-wood box, containing supplies of acid and ammonia, the former being in a green glass bottle which corresponds with the green tube of the inhaler. The only word of caution we would venture to give in connexion with this instrument is that it is absolutely essential that the sponge in the centre tube should be freshly moistened every time the inhaler is used. Messrs. Godfrey and Cooke, of 30, Conduit-street, London, are the patentees and sole makers of this inhaler. Its price is moderate.

NEW RECTAL SPECULUM.

THERE are various symptoms complained of by patients referable to the rectum as a cause of trouble, and requiring a visual examination of the parts. In hospital practice, it is an easy matter to anæsthetise the patient, and by stretching or forcibly rupturing the sphincter and obtain a full view of the rectal walls. In private practice few patients will submit to such a severe proceeding unless driven to it by extreme suffering, so that if a satisfactory examination is to be made, without much pain to the patient or the necessity for ether or chloroform, it is essential that the examination should be made with a speculum which will give the least annoyance. The illustration represents a light wire speculum, with parallel action and easy of introduction, which, when properly used, will, with the minimum amount of discomfort to the patient, afford the examiner a good view of the rectal walls. The screw, with winged nut, which divaricates the blades, is kept towards the sacrum of the patient, and when the instru-



ment is *in situ* the necessary amount of expansion can be effected at will, the blades working parallel, while an anterior and posterior screw at the base of the instrument will, when worked, bend the flat rod (running from top to base of each blade) into a convex shape, and so bulge out and stretch the rectal walls as to obliterate the usual folds, and that without any additional strain on the sphincter itself. I know of no other rectal speculum working on this principle, as the lax part of the rectum above the sphincter is never put on the stretch by the ordinary rectal specula in use, so that a fissure or small growth &c. could be easily overlooked, and the patient persuaded that nothing was wrong there. The speculum can be taken asunder for portability or for cleaning, and I fancy the instrument I have endeavoured to describe will be found on trial to fulfil the advantages claimed. It is made by Messrs. Arnold and Sons, London.

Dublin. ALEXANDER DUKE, F.K.Q.C.P.I., &c.

THE LANCET.

LONDON: SATURDAY, AUGUST 18, 1888.

THE Parliamentary Session, which has now reached what would in ordinary circumstances be its termination, has been marked by the devotion of a quite unusual proportion of time and attention to questions affecting the health of the public or other matters in which the medical profession is specially interested. In legislative projects marked activity has prevailed, and although the result attained falls, as was to be expected, much below the result attempted, we are able to record, with a lively satisfaction, a very considerable amount of reform of a peculiarly useful though unobtrusive kind.

In any such review the premier place will naturally be assigned to the Local Government Act. The vast extent of the ground which it covers, even in the reduced proportions in which it has passed the Legislature, entitle it to this position. But our views upon all its main features have been so fully expressed from time to time as they have severally come under discussion that it is quite unnecessary to review it here and now. A passing mention of the Act and a general reference to our previous utterances are all that the present occasion demands or even permits. As part of the other legislative work of the session may be enumerated the measure by which the Habitual Drunkards Act, on which we offered some comments last week, has been rendered permanent.

Another little statute that is of great significance to those whom it affects is the Factory and Workshops Act, by which the factory hands of Scotland acquire two days of holiday-making in the year in place of Christmas Day and Good Friday, and this, as tending to increase the facilities of wholesome recreation, may be welcomed by all well-wishers of the poor. The Act is, however, somewhat limited in its application, and its traceable results may be expected to be small. Much larger and more visible consequences may be looked for from the operation of the Merchant Shipping (Life-saving Appliances) Act. The duty of carrying an adequate equipment of appliances for the saving of life in cases of emergency is now unequivocally defined and enjoined upon all who send British ships to sea. The preparation of rules by which this duty is to be enforced has been entrusted to a committee composed of the representatives of the shipping community on the one hand and of the Board of Trade on the other. The effect of the statute will chiefly depend upon the results of their deliberations, but we entertain the hope that it will be found to increase very appreciably the security of life at sea.

Less directly connected with the conservation of life and health, but still of sufficient importance in these respects to receive mention here, is the remarkable inquiry into the charges made against the Metropolitan Board of Works, conducted by Lord HERSCHELL and his coadjutors. Public attention has indeed been turned, and necessarily so, much more upon the inquiry itself and the facts brought by it to light than upon the statute by which the tribunal was constituted. The inquiry has still to be completed, although the fate of the Board has probably been already sealed; but its inception, and therefore, in a sense, all that flows from it, must be credited to the session under review.

Passing from these measures, which have been safely carried through all the stages necessary to invest them with the force of law, we may next notice some in which we have a lively interest, and which, thanks to the prospect of an autumn session, are still among the legislative possibilities of 1888. These include, indeed, some of the most important measures, from a medical and sanitary point of view, that have been brought at all to the notice of Parliament. Thus the Pharmacy Act Amendment Bill, in which the House of Commons took, when first it was first brought down from the Lords, so little interest as to allow it to be counted out, still stands for second reading in November. So also the Coroners Bill, in which an attempt has been made to consolidate the law relating to coroners and their duties, has been saved from destruction by the postponement to the autumn of its later stages. Again, the Bill for providing for the Better Housing of the Working Classes has in like manner been saved from Parliamentary shipwreck, and its second reading fixed for an early date in the autumn sitting. But the most important of them all is the Public Health Act, with which the names of Mr. HASTINGS and Dr. FARQUHARSON are associated. This, if it passes into law, will make the notification of infectious disease to the local sanitary authority a compulsory duty upon the responsible occupier of a house, and, if effective, will do more than any other measure of our time for the extirpation of preventable disease.

Among the abortive attempts at legislation which the past session has witnessed are some which we cannot regret, but more which we would gladly have seen bear fruit. To the former class belong the Bill brought in by Mr. PICTON for abolishing the penalties by which the practice of vaccination is at present enforced. Among the latter may be mentioned the Lunacy Acts Amendment Bill of the Lord Chancellor, which promised some relief to medical practitioners in the discharge of most difficult and at present most burdensome duties. So with the Sanitary Registration Bills, which were directed to movable abodes and to buildings occupied as schools, or for any other quasi-public purpose respectively. Of these we entertain the hope that they will at no distant future receive the attention that they deserve. Without committing ourselves to all the principles embodied in Mr. REID's Bill for the Housing of the Working Classes, in the Factory Acts Amendment Bill, or in Sir JOHN LUBBOCK's Early Closing Bill, we may admit in general terms the importance of dealing comprehensively with these large subjects.

Such, then, is, from our special point of view, the legislative outlook at the commencement of the Parliamentary recess. But Parliamentary activity is by no means limited to legislation, and how important are those deliberative functions which are never even intended to take shape in Acts of Parliament may well be represented by a mere enumeration of the topics thus treated. For example, there are the highly valuable though academic discussions which have taken place in the House of Lords upon the sweating system and the sanitation of the Dublin Barracks. Again, there

are the important papers which have been produced showing the duration of the hours of labour in railway service, and the telling fillip which was administered to the official conscience by the discussion on June 1st in the House of Commons of the outbreak of small-pox at Sheffield. Finally, to make our record even fairly complete, we must not omit to notice the mischievous resolution adopted a few days later on the motion of Mr. MCLAREN, respecting the working of the Contagious Diseases Acts in India.

However, upon the whole, the record is one to be reviewed with a considerable measure of satisfaction. Some things have occurred which we regret, but more in which we are glad to have been able to co-operate. "Something attempted, something done," has earned, and fairly earned, the "long vacation."

THE subject chosen by Dr. CLIFFORD ALLBUTT for the Address in Medicine delivered on the 8th inst. at Glasgow was one which, more than any other perhaps, serves to show the incompleteness of medicine as a science, and from the very nature of the questions involved seems to offer but little hope for any marked advance in the region indicated. The subject was the "Classification of Diseases by means of Comparative Nosology," and the address indicated the great need there is for such a classification. But at the same time it clearly proved how utterly inadequate are the data we at present possess for framing any kind of nosology like that aimed at. Here and there we get glimpses and fragments of the natural affinities of disease, and of their modification in time, place, and race; but there are huge lacunæ to be filled—and filled, too, not simply by the patient collocation of facts at the hands of any one man, but by the united efforts of all engaged in observing disease, whether in man or the lower animals, or even in the vegetable kingdom, and that not in one generation or one lifetime, but over a period of time which is practically unlimited. Certainly Dr. ALLBUTT has succeeded in disturbing the complacency with which we are most of us wont to regard the present enlightened condition of medical knowledge, and he must have made his audience feel that, with all our boasted acquisitions in pathological science and in etiology, we are yet very far from having attained a fulness of knowledge concerning even the groupings and relations of disease. In all humility we feel bound to accept the position which the contemplation of our ignorance in this respect assigns us, and can only look forward to the far distant future when our descendants, with riper experience and fuller information, shall have advanced some way towards the framing of a natural classification of disease.

Nevertheless, as Dr. ALLBUTT took great pains to demonstrate, we have even now considerable material to hand, which serves at least to illustrate the magnitude and the complexity of the task to which he invites us. The address literally teems with suggestive facts, which point the way towards the goal, but are far from landing us at it. It was no fault of Dr. ALLBUTT that he frequently led his hearers to a point which seemed near finality, when he felt bound to confess that there were many links wanting in the chain which have not yet been discovered; and although occasionally it is possible to make up the defects by speculation, yet as such a procedure is seldom either scientific or safe, the probability is that if pursued it would only lead to error. Speculation and hypothesis have their legitimate place, and are sometimes of much service in enabling us to grasp great principles; but they must be kept within their sphere, and not permitted to take the place of proven facts. Dr. ALLBUTT, early in his address, alluded to the growing complexity of the nervous system as having its counterpart in the domain of disease, and illustrated it very happily by reference to the remarkable recuperative power, and the autonomy of parts of the body in animals of simple and low organisation, as contrasted with the finer knit body of the higher animal, in whom every part is responsive to the sufferings of every other, or, as he put it, where local morbid change is subordinated to the balance of systemic forces. That there are animals whose nerve organisation renders them incapable of fever was one of the suggestive hints that arose from this speculation; whilst another was the application of the same thought to civilised mankind, and the growing tendency to neurotic disease, or, in other words, to the connexion between the nervous system and disease from the development of new factors due to the greater exercise of the higher faculties.

It would not be possible to follow this able address through all the intricate paths it took. Our readers have the opportunity of judging of its quality for themselves, and we can but commend it to their earnest and thoughtful study. It was a difficult task which Dr. ALLBUTT undertook; but he faced it manfully, and unfolded a vast number of facts gathered from all sources, and marshaled in as systematic an order as the subject would permit. He showed how the endeavour to attain to a perfect nosology might be made on at least four separate lines—namely, the hereditary method, the historical method, the geographical method, and the experimental method. In each department there are certain facts available; but in each also there is an infinite amount of knowledge still wanting. Moreover, as he showed, we require to extend our survey of disease over the whole animal and even the vegetable kingdom. We have to unravel the characters impressed by transmission through generations, and to determine how these are influenced by the operation of "artificial selection," which has replaced that of natural selection in civilised mankind; we have to inquire into the geographical distribution of disease, and into the recondite subject of animal poisons; in fine, we have opened up to us so vast and bewildering a region of research that courage may well be wanting to attempt to scale the height towards which Dr. ALLBUTT points us—namely, a perfect nosology.

OUR readers cannot fail to peruse with pleasure and profit the able Addresses in Surgery delivered at the meeting of the British Medical Association by Sir GEORGE MACLEOD and Dr. WILLIAM MACEWEN. The former dealt with the discoveries and developments that have been made in surgical art and science during the last half-century; whilst the latter is a splendid record of the progress made in one particular branch of operative procedure.

Sir G. MACLEOD did not confine himself to a recital of the changes that have taken place in matters purel

medical and surgical during the period mentioned, but, taking a wider survey, brought under notice what he termed "the reconstruction of the collateral sciences," showing how much that had previously been hidden in "the Dark Continent" had been brought to light by scientific research. In the brilliant light of existing knowledge it looks strange that within living memory such valuable aids to the investigation of the problem of life and death, health and disease, as the achromatic microscope and the spectroscope were things unknown; and that electricity had received little, if any, of its medical applications. Yet such is the case. The greatest achievements in surgical practice have been rendered possible—nay, certain—by the discovery of anæsthetics and by the perfection of the antiseptic treatment of wounds. Procedures which had previously been held as impracticable on the one hand, or as instances of mere operative audacity on the other, are now ranked amongst the surest surgical triumphs. After passing in review the most notable examples of the outcome of anæsthesia and antisepticism, Sir GEORGE MACLEOD touched upon the erstwhile clouded atmosphere in which the pathologist groped in search of the true explanation of the nature and method of septic infection, citing the views held in order of time by various investigators and theorists. There could not be a more fitting example of the difficulties under which truth is extracted from the tangled web of much that is false, more that is equivocal and but little sure. Still even the wildest assumptions have been of service, either directly by bringing to light—perhaps unexpectedly—something of worth, or indirectly by stimulating research in a different direction. The germ theory of disease could hardly have been worked out with rapidity and success save for the vigorous advocacy of spontaneous generation with which it was assailed. As Sir GEORGE pointed out, the terrible havoc made by "preventable disease" during the Crimean war, and the decimating attack of cholera in 1852, were circumstances which stimulated the search after knowledge in this particular channel. Passing on to the subject of Pathological Anatomy, which the lecturer averred had been created since 1837, he gave in order and detail the steps by which its extension and simplification had been attained; showing how the discoveries of SCHLEIDEN in the vegetable world were turned to profit in the study of animal tissues. Since Sir GEORGE MACLEOD entered the active ranks of the profession, he has witnessed the birth, the acceptance and the almost general disavowal of VIRCHOW'S theory of "cellular pathology." Space fails us to give even a cursory notice of all the matters touched upon in Sir GEORGE MACLEOD'S exhausting review, for the history of half a century of medical progress cannot be written in a few lines. Suffice it to say that within the period mentioned the treatment of aneurysm has been amplified and improved; the study and treatment of fractures and dislocations have been conducted upon a more scientific basis; whilst abdominal and intracranial surgery has practically been created.

Dr. MACEWEN'S address is worthy of unqualified praise. The subject, of which he is a master, has been argued with all the skill of a special pleader and summed up with the studied impartiality of an experienced judge. The profession has received by instalments the record of Dr. MACEWEN'S experience in the operative surgery of the brain and spinal cord. It now has presented to it in a more complete yet concise form a recital of his practice. In his earlier passages he sketches the history of the development of the regional and local anatomy of the brain, and then proceeds to exemplify the way in which he has turned his knowledge of that anatomy to practical ends. It seems strange at first sight that cerebral surgery should have been neglected so long, for it is only within the last few years that anything has been attempted in this field except in cases of traumatism, and even then the guide to interference was the rough-and-ready one furnished by external appearances and general nervous derangement, rather than by a well-regulated study of "localisation." The success that has attended Dr. MACEWEN'S operations on the brain, whether in cases of injury or idiopathic disease, has been, we might almost say, phenomenal, and our readers will understand this when they consider the extreme gravity of the symptoms, and the inherent difficulties that beset the necessary operative procedures. We are entirely at one with him in his protest against the indiscriminate performance of operations in all cases, even where a coarse anatomical lesion can be diagnosed and reached. A patient troubled with epileptiform seizures can scarcely be advised to barter his present infirmity for paralysis, which may be total and must be abiding, or, as Dr. MACEWEN pithily puts it, for the equivalent of amputation at the hip and shoulder joints, since this would be the result of removing large wedges of the cerebral cortex. We cannot commend too highly the lecturer's honesty in publishing the fact that, having exposed the brain and found a widely and deeply extended lesion, he has desisted from completing the operation. Nor is the extent of removal of the brain-substance the sole factor in the determination of the performance or avoidance of an operation, since, as Dr. MACEWEN shows, after the brain has been exposed, even though healing goes on uninterruptedly and well, the cerebral substance is likely to remain anchored to the skull directly or by the medium of its adherent membranes. In this way disturbance of the cerebral circulation is likely to arise, the brain being no longer free to ride upon its water bed, and to adjust itself to the varying strain that muscular action is continually imposing upon it. We are glad to see it insisted upon that false hernia cerebri consecutive to encephalitis is not necessarily dependent on the septic condition of a wound, but that it may arise from the irritation caused by the tension of tumour. Dr. MACEWEN states a case where, on incising the dura mater over a new growth, the surrounding tissue affected by red softening at once protruded through the trephine aperture. In conclusion, we make favourable mention of the author's discriminating remarks upon the question of opening the spinal canal for the removal of a tumour or inflammatory neoplasm, or for elevation of bone depressed by injury or misplaced by caries. It is obvious that in such cases a careful consideration of the nature and duration of the symptoms, of the relief likely to be attained, and of the chances of failure or fatality, must

be made before the surgeon is justified in undertaking what must be admitted to be a dangerous operation.

LORD WOLSELEY contributes an interesting article on "Courage" to the current number of the *Fortnightly Review*. The subject is treated from the popular and military, rather than the psychological, point of view, and the article is interesting mainly as showing the value attached to personal bravery by a distinguished soldier. That value is a very high one. "Nothing is so fascinating as reckless courage," says Lord WOLSELEY, who goes on to depict from materials gathered on many a hard-fought field the magnetic attraction exerted by the man who, indifferent to personal peril, leads the assault and is foremost in the breach. Such men are, he says, invaluable to a general, and are indispensable when some forlorn hope, some enterprise of peculiar and imminent danger, becomes necessary. The rank and file follow with enthusiasm the naturally brave, and reverence for courage seems to be one of the deepest instinctive racial attributes of an Englishman. This reverence, though no doubt the fertile source of much that is noblest in our national character, has also its evil side. "It is the base and root of that creed of honour which we all esteem, and which not a few among us prize more highly than the nobler teachings of Christ."

Lord WOLSELEY is emphatic that a sound physique is indispensable to the development of a high type of courage. "I regard courage as the mental correlative and equivalent of perfect physical health. My experience has taught me that high courage is generally accompanied by physical soundness." This is essentially a soldier's analysis, correct in a sense, but inadequate. In military life the courage to will must be associated with the physical force to execute, otherwise it is obviously of little avail; but no psychologist would admit that there is any necessary nexus between soundness of organ and limb and that inflexibility of will and contempt of death which constitute the highest type of valour. The history of the world is full of the great achievements of the physically weak, and we are familiar with the spectacle of the ardent mind "fretting the puny body to decay." Such men, however, are for the most part obviously excluded from military life, and direct parliaments or dominate literature rather than command armies. Hence Lord WOLSELEY's opinion is, from his point of view, correct in the main, though he himself admits that a valetudinarian, such as WILLIAM III., may be a great and successful commander. Such cases are, however, from obvious considerations likely to be rare.

Again, Lord WOLSELEY regards courage as the attribute rather of the better bred, and traces this fact of experience to two considerations: first, that the upper classes inherit, on the whole, a better physical strain than their social inferiors; and, secondly, that these classes have the pride of ancestry as a potent motive impelling them to heroism, and restraining any tendency to cowardice. There is truth in both these views; but, on the other hand, bravery is almost innate in our race, and no scion of the aristocracy could show more supreme contempt of danger than that with which the Scottish Highlander or the Irish Celt rushes upon his foe. Perhaps the difference, whatever it may amount to, is best accounted for upon evolutionary grounds. The noble is accustomed to lead, the peasant to be led. This in time develops a certain sentiment of class which finally becomes a fixed and hereditary instinct.

Casuists have often debated whether the palm of bravery belongs of right to the man who is constitutionally insensible to danger, or to him who, being naturally timid, has force of will to restrain his timidity, and to perform deeds of heroism. Lord WOLSELEY declares unhesitatingly for the former, arguing that, whatever philosophers may say in the cool atmosphere of their studies, the naturally brave man is the more "lovable" character, and the one to whom others will instinctively turn in moments of supreme peril. It is difficult to demur to such weighty testimony, and yet that strength of will which can quell passion or still the quakings of a fearful heart is surely akin to much that is noblest in man. Courage is, however, like love. We admire feelings that are instinctive more than those that are the result of cool deliberation, and no doubt in the main we are right in so doing.

Lord WOLSELEY has much that is interesting to say regarding the tests of courage. He regards it as the greatest test of all "to be at a distance from operations for which you are responsible, but over which you cannot exercise control." Here again, of course, speaks the military commander. Probably medical life affords tests of courage as great as this. The appalling emergencies which from time to time occur in surgical operations, perhaps when help is most distant and the need most urgent, are a supreme test of personal bravery. Nor is the physician exempt from tests as severe. A sudden and unexpected encounter with a homicidal lunatic, the heartrending scenes of a cholera epidemic, the overwhelming crisis of family affliction—these show a man's fibre as truly as the more evident perils of war.

The writer concludes with some personal recollections of an eventful life. Among the bravest men whom he has known, he mentions Captain Sir WILLIAM PEEL, Sir GERALD GRAHAM, V.C., and General GORDON. The last-mentioned has succeeded in impressing his extraordinary personality deep on the page of contemporary history. He united in himself a combination of apparently the most dissimilar attributes—the tenderness of a woman with the dauntless bravery of the bravest man, "an unbounded sympathy for all the animal creation," with "an absolute disregard for human life." For him, says Lord WOLSELEY, "danger had actually and positively nothing terrible about it." He regarded this life only as the poor prologue to a nobler stage of existence, and cared not whether the first wandering bullet carried his dismissal from a world which to him had few pleasures and no engrossing fascinations. Such a character may be a beacon in troublous times to hold aloft the light of religion and duty, but it has in it a morbid element not wholly admirable. Contempt for this world is not usually a mark of wisdom, nor is an impatient desire for release from present duty to be commended. Those despise this life who have misused it, and the renunciation of worldly joy, which so readily apes the attitude and language of piety, may at bottom be only the unconscious confession that such joy has been forfeited through vice, folly, or misfortune. The Romans depicted man as a sentinel on guard, whose deepest infamy it would be to

desert his post. Christian ethics must not be perverted to hold up before us any lower ideal.

OUR readers will find in another column the final report of the Committee of the Bower and Keates Indemnity Fund. It will be read with interest as a record of one of the most successful appeals to medical men on behalf of injured and maligned brethren, who had done their best in a difficult case, which can be found in the history of the profession. The intervention of the Public Prosecutor in this case was most unfortunate. By this intervention Messrs. BOWER and KEATES were debarred from bringing an action for malicious prosecution and from the right of claiming payment of their expenses from those who, to use the expression of the magistrate, "persecuted" them. The medical profession is beset with difficulties, and its most delicate duties have often to be performed under the most urgent circumstances. Large fees do not requite the professional labourer in such cases. But it is hard indeed when in place of these he is put on his defence in a law court in one trial after another. This was the case which in December of 1883 excited the interest and the sympathy of the profession to such a remarkable extent that, within a week, over £1700 was raised, and the Committee had quickly to stop the flood of subscriptions. They came from all parts of the United Kingdom, and from nearly 2000 subscribers. It is a fine illustration of the fact that, when properly moved, the profession can act with effect, and that when "one member" suffers the rest of the body suffers with him. It would be wrong to forget that the splendid success of this movement was due very largely indeed to the sympathy of the leaders of the profession and to men in a consulting position. The movement practically emanated from Sir WILLIAM JENNER'S house, and all the meetings of the Committee have been held there. Sir JAMES PAGET, Sir WILLIAM GULL, Professor JOHN MARSHALL, and the late Dr. WILSON FOX were present at the first meetings. There was another influence the recognition of which is painfully binding. The enthusiasm of the late Dr. MOXON will be a memory with those who knew him. The facts of the case excited that enthusiasm, and he spent days over it, as if it were a new pathological specimen, or as if a large fee was to accrue to him for his labours and his time. The same is true in scarcely a less degree of the late Dr. MAHOMED, whose untimely death necessitated the appointment of another honorary secretary, Dr. R. W. BURNET, who has had an amount of trouble in connexion with the legal complications of this case only known to the Committee, and who has saved considerable sums of money by his mastery of its details and his attention to the legal charges. The disposal of the surplus is announced in the report, and will meet with the approval of the profession. Practically, it has already done so; for our readers will remember that some weeks ago the Committee intimated their intentions on the matter subject to the approval of the subscribers, which was virtually given, as the report explains. The moral of the whole case is twofold: first, that the Public Prosecutor should be careful how he undertakes action against those who are entitled to his protection; and, secondly, that the medical profession has only to hold together to make the public understand that it is as vain to attack its members in relation to the discharge of their difficult duties as it is ungenerous. We have many times of late noticed with satisfaction a strong sense of justice in legal decisions of questions between medical men and their accusers; but there is still one drawback. Justice is generally forthcoming, but at what a cost to the medical man of time and health, of money and of reputation. "The law's delay" in this case has extended over four or five years, and its costliness is shown in the fact that about £1100 has been needed to defend medical men who did their duty.

Annotations.

"Ne quid nimis."

FOOD REFORM.

ONE, and that not the least important, of the movements at present operating in the direction of increasing the physical vigour and, correlatively, the mental and moral condition of the people, is that which has for its object the improvement in the kind and the quality—i.e., the purity and the dietetic value—of the food in common use. In this matter, as in other things, prejudice and fashion have had too much sway. To take only one example, that of bread—how difficult it appears to be to persuade people that as the whiteness of a loaf is increased, so, *pari passu*, is its nutritive value diminished. Then, again, as to the kind of food. The general impression among the poorer and more uninstructed classes is, no doubt, that the heavier and more bulky the mass, the more in weight that can be got for a certain sum of money, the better the bargain; whereas, in fact, bulk is a comparatively unimportant factor in the question of economic dietetics. We have before us the last published Report of the Bread and Food Reform League, which we commend to the attention of all who desire to assist in the amelioration of the lot of the struggling poor. This report gives an encouraging statement of the progress of the movement towards awakening a more extended interest in food questions, and its promoters are worthy of all praise for their exertions in diffusing information on a subject which lies at the very root of many of the evils which afflict the lower strata of society.

THE RAILWAY FEVER.

THE phenomenal rapidity of railway journeys with which we have lately become familiar has so far elicited little but the favourable comments of public opinion. The venture appears to have justified itself as an engineering success, and its commercial results or probabilities have evidently up till the present satisfied the rival companies now racing against each other. It appears, therefore, to be a fitting time to inquire whether health and bodily safety are affected by the new energy thus imparted to our customary mode of travel, and what will be the probable effect on our physical condition if the same zeal for velocity should take possession of railway directors throughout the country. In endeavouring to answer this question, we have to consider first its immediate relation to life and limb—in other words, the liability to accident. So far no catastrophe has occurred to alarm the onlookers at the great race; and we sincerely trust that we may learn—if learn we must—the insecurity of this railroad hurry without the bitter teaching of experience. It will rest with the companies to supply such metals, vehicles, and officials as will guarantee the

prevention of any serious mishap. Let it be granted that they are able to do this with reasonable accuracy, and there still remains another important consideration. This is the probable influence of such hasty journeys if frequently repeated. The question is one of those which appeal most directly to the mind of those daily birds of passage—the numberless army of business men living out of town. What would be the probable effect on their health of a morning and evening run of, say, from fifty to one hundred miles? We venture to say that country air thus acquired would be for most of its possessors a dearly purchased gain. The working day for such a one begins we may say, with an hour's oscillation of his brain structure—not, indeed, to an alarming degree, but nevertheless implying a chronic, rapid, and recurrent molecular disturbance. After this comes again for the same organ a day's work and worry, then again in the evening a return of the railway tremor. Evening also brings the country air and rustic recreation, and the traveller thinks that he has done well to obtain these for himself and family without neglecting business for one day. For a time, perhaps, he feels assured of this, but we fear only for a time. To live a racing life all through the day, to dine and try to sleep while hardly free of his feverish hurry,—this does not accord with a prospect of longevity. Work is hurry and worry; rest is pushed into a corner; and though the man lives, he cannot be said to live well. On the whole, therefore, we would advise that the swift journey should remain, if at all, as the luxury of the distant and occasional traveller. For those who frequently use the line, and for railway *employés* themselves, especially the drivers and stokers, its constant use can hardly be conducive to health. Education will doubtless do much to establish a habit, and some of us perhaps will in future travel with comfort amazing distances in brief intervals of time; but for those who have not early learned the habit, and perhaps for others also, the new system of hurry does not commend itself to our judgment as a wholesome practice.

EFFECT OF IRON ON THE VITAL PROCESSES.

M. SKVORTSOFF, who has been working in the pharmacological laboratory in Warsaw under Professor Tumas, has published an account of some experiments made with the view of elucidating the pharmacological effect of preparations of iron. His experiments were conducted on a dog, the nitrogen of the meat, urine, and fæces being estimated by the Kjeldahl process, the urea by Liebig's process, and the hæmoglobin by means of the new hæmochromometer of Malassez. The method adopted was as follows: the dog was kept the whole time on animal food, iron reduced by hydrogen being mixed with the food. The animal having been got into a condition of nitrogenous equilibrium was given iron for twenty days in gradually increasing quantities from 0·01 gramme to 0·08 gramme per diem. Then the nitrogenous metabolism was determined daily during seven days after the cessation of the iron. Twenty days after the conclusion of this period, the animal having recovered its nitrogenous equilibrium, 26 per cent. of the whole blood in the body was taken from the jugular vein, the percentage of hæmoglobin in the blood having been determined for some days previously. Subsequently this was again determined for a few days. Fifteen days after the venesection, when the hæmoglobin had returned to its normal amount, a second venesection was performed, about 34 per cent. of the whole quantity of blood being this time abstracted. After this second bloodletting the animal was given iron in quantities of from 0·06 to 0·25 gramme per diem, the hæmoglobin being determined as before. Fourteen days after the second venesection a third was practised, about 25 per cent. of the whole quantity of blood being taken. After this no estimation of the nitrogenous metabolism was made, but the hæmoglobin only was determined. The general results obtained are thus stated in a short "preliminary notice" communicated to the *Vrach*. 1. Iron does not affect to any appreciable extent the nitrogenous metabolism in the healthy subject. 2. The internal use of iron in quantities greater than 0·02 or 0·03 gramme per diem (in the dog which formed the subject of the experiment) decreased the assimilation of the nitrogenous parts of food, but only to a small extent; thus before the iron the nitrogen assimilated was 98·4 per cent., during the administration of iron the nitrogen was only assimilated to the extent of 97 per cent. 3. The assimilation of the nitrogen of the food was somewhat increased after the abstraction of blood whether iron was given or not. 4. If, after the bloodletting, iron was given with the food, the hæmoglobin increased more rapidly than if iron was not given. After the first venesection, when no iron was given, the hæmoglobin did not attain its normal quantity for fifteen days. After the second, which was by far the more copious abstraction of blood of the two, the administration of iron brought the hæmoglobin up to its previous percentage in five days, while in ten days it had exceeded its original percentage. It should be stated that the percentage of hæmoglobin immediately after the two bleedings was found to be the same. 5. The weight of the body after the bleeding increased more rapidly under iron than without it. After the first bleeding without iron, the rise in weight on the seventh day was 80 grammes. After the second bleeding, iron being given, the rise in the same time was 180 grammes. After the third bleeding, which was performed as a control experiment, the rate of increase of hæmoglobin, no iron being given, was similar to that observed after the first bleeding.

CHRIST'S HOSPITAL.

THE Charity Commissioners have issued a series of suggestions for the reconstitution of Christ's Hospital—the "Bluecoat School," as it has been popularly called. The four to five hundred schoolboys, wearing the quaint dress and having uncovered heads, as they might be seen through the somewhat prison-like bars from Newgate-street, attempting to find amusement and physical recreation in the confined quadrangle of their city home, are shortly to be transferred to a more open space in the country. It is a matter of surprise that the school should have been retained so long within its present confined area. As we have before represented, it is unsuited to the growing schoolboy, and the site is more valuable for other purposes. But the scheme of the Charity Commissioners is not limited to the transfer of the schools to the country. The surplus funds arising from the disposal of the present site will be sufficient to found day schools in London on the lines of Merchant Taylors', St. Paul's, and the City of London Schools; and girls are to benefit by the extension. This and other portions of the scheme may appear a misapplication of the intention of the original founder, but in reality it is no more than an amplification of his good intention, and the greater benefit thereby of larger numbers. The *Educational Times* of August 1st calls attention to the probable loss of income from one source—viz., through the withdrawal of the privileges of governors arising from their subscriptions, which the very limited payments of the better-to-do scholars it is contemplated to impose will be inadequate to balance. The chief defect of the scheme appears to us to be the small extent to which paying scholars are to be admitted to the new school when transferred into the country, after the manner of Charterhouse, Marlborough, and other public schools.

Christ's Hospital will have the machinery of public school education in action, and it might just as well be extended to remunerative scholars, making the profit therefrom a benefit to the foundation. To limit a school like Christ's Hospital to charitable purposes places the scholars at a disadvantage. They are too much from one class, and that the least fortunate in the struggle for existence. They are the children of educated and refined parents who have not been able to battle with the world so successfully as others have done. The children of such persons require to be intermixed with large numbers of those of the more practical and successful in life. This is essential to a full education, and it is one of the main and most valuable features of our present public school system. Christ's Hospital in the country should consist of paying as well as foundation scholars in a central building. Masters' boarding-houses should be attached for the children of more affluent parents, thus ensuring a sufficient variety from the social classes among the pupils, and at the same time yielding income enough to ensure the services of the best masters. If this is lost sight of in the new scheme, Christ's Hospital will be placed at a disadvantage with other public schools, and the good of the foundation will be limited. The profits on two or three remunerative pupils should be sufficient to educate an additional foundationer and aid in his maintenance. Eton, Winchester, Harrow, Rugby, Charterhouse, and Marlborough are not the less sought after by affluent parents seeking the highest educational advantages for their children, because some of the pupils are educated on the foundation, as "foundation scholars," from charitable bequests, after the manner of the scholars of Christ's Hospital.

POISONING BY CHLORATE OF POTASH.

TWO deaths from poisoning by chlorate of potash are reported in the *New York Medical Record*, of July 21st, 1888. The account is given in a very carefully written paper by Dr. George L. Peabody, Professor of Materia Medica and Therapeutics, College of Physicians and Surgeons, New York City. We are so apt to think lightly of the power of this drug as prescribed in small doses, that it is well to know that in large quantities it can produce disastrous effects on the blood and the chief organs, and so cause death. In one case related, the patient was a young Irish girl, single, aged twenty. She was admitted to the New York Hospital on April 10th, 1888, at 4 P.M. She had taken on the previous evening two tablespoonfuls of chlorate of potash by mistake for a dose of Rochelle salts. On admission she was in a state of profound prostration; her temperature 99° F.; pulse 136; respiration 32. Her surface was very cyanotic, and her breathing rapid but not laboured; her pulse, though not very rapid, was very feeble. She vomited freely before and after admission to the hospital. In spite of whisky, digitalis, and strophanthus, the symptoms got worse. At 6 P.M. her temperature had risen to 104°. During the night the bowels acted three times, the motions being dark-brown and of semi-solid consistency; dark-coloured urine was passed involuntarily. It was proved to contain many blood cells, large masses of altered hæmoglobin, and much albumen. The next morning her temperature fell, and the pulse and respiration improved for a few hours. By noon the pulse and heart were again profoundly weak, and the temperature rose to 101·2°. Dr. Peabody was impressed by the very extraordinary colour of her skin and conjunctivæ and lips, as well as by her great restlessness. The intense anæmia with a cyanotic hue, and a very distinct sepia-brown chocolate tint where the epidermis was thin, were remarkable. Inhalation of oxygen produced no improvement. She slept steadily, and died thirty-seven hours after the poisonous dose. At the necropsy the colour of the body was not materially changed, and a slight hue of jaundice was added to the anæmia and chocolate colour. The blood of the great vessels was all liquid, and of a very dark chocolate colour. The heart was soft and flabby; there was slight dilatation of the left ventricle. The lungs were normal, but the cut surfaces very brown in colour. The spleen was large, firm in consistence, and of a very distinct chocolate colour. The kidneys were large, their capsules not adherent, their surfaces smooth, and both were diffusely stained with the same chocolate-coloured blood. The bladder contained three ounces of urine, of a dark brownish-black colour, and not at all translucent. The chief lesions were those of the heart and kidney. Microscopically very extensive fatty degeneration of the heart was evident, especially in the papillary muscles of the left ventricle. Many of the straight tubes in the pyramids of the kidneys were found filled, even to distension, with broken-down blood cells and methæmoglobin. A spectroscopic examination of the blood revealed the spectrum of methæmoglobin with great distinctness. The conversion of the hæmoglobin into methæmoglobin explains the dyspnœa and the altered colour of the patients. We cannot give the facts of the second case in such detail. The patient was fifty-three years old, and for two years at least, according to his servant, he had been in the habit of taking chlorate of potash "by the pound" for a chronic throat trouble. He also looked very pale and waxy. He became ill with feverish sore-throat, and on one occasion had taken more chlorate of potash than usual. He became very anæmic, passed no urine, vomited, and was jaundiced. He became steadily weaker, and died comatose. The distension of the tubes of the kidney with altered hæmoglobin and the degeneration of the heart muscle were as in the previous case. The bladder contained two ounces of urine, almost black in colour. The gall-bladder was filled with thick, very dark-green bile. The spleen was six times its normal size, and of a very dark chocolate hue. The kidneys were of the same colour. They had a granular surface, but were not distinctly atrophic.

PRISON RULES IN SCOTLAND.

THE Secretary of State for Scotland has just issued a new set of prison rules, in which the duties of the medical officers of Scottish prisons are, among others, very carefully and minutely set out. In the main the duties thus defined coincide with those of medical officers in English prisons, but in one or two particulars the new regulations enlarge the medical man's responsibilities. Thus, he is charged with the care not only of the prisoners, but also of the families of officers and servants of the prison. He is also made responsible for the preparation of an indefinite amount of statistical matter at the direction of the Commissioners. He is required, like his English *confrère*, to make a quarterly inspection of the prison premises, and in addition to this he is frequently to examine the "washing-places, baths, and other provision for the purposes of cleanliness and sanitation, and see that they are in efficient working order." The inspection of the food supplied to prisoners, both when cooked and while uncooked, is specifically prescribed to him. The regulations relating to the attendance of the sick and the weekly visitation of prisoners in good health are practically the same as those which obtain south of the Tweed, but the new Scottish regulations also direct the medical officer to examine the prisoners from time to time during their employment at labour, with a view of satisfying himself as to their fitness for the tasks imposed. He is also to be consulted in every case where it is proposed to subject a prisoner to close confinement or to dietary punishment, and his sanction is only to be given after personal examination. So far the duties of the medical officer are offices of mercy intended to mitigate the severity of punish-

ment, and in England his whole duty may be said to be comprised in that description. In one particular, however, the medical officer of a Scottish prison is to be pressed into detective service, for it is now defined as a part of his duty to report to the governor of the prison any mark which he may observe on the person of a prisoner capable of serving the purpose of identification. Thus it will be seen that the new regulations have been prepared by the light of past experience, and give a very detailed view of the functions of the medical officer of a prison. The tendency of the time undoubtedly is to attach increasing importance to the due discharge of these functions, and we believe it will be found that greater attention to the health and sanitary surroundings of the prison population, far from diminishing the efficiency or the effect of prison discipline, will powerfully assist those influences tending to reform the criminal which it will be the aim of all enlightened legislation to strengthen.

SNAKE POISON.

DR. A. E. FEOKTISTOW has published a communication to the Imperial Academy of Sciences of St. Petersburg on the effect of snake poison on the animal organism. His experiments, which numbered some 300, were conducted with the poison of vipera ammodytes, vipera berus, and crotalus durissus, obtained from about eighty of these animals which were kept in a building suitable for them. No physiological difference could be discovered between the effects of the poison of the three snakes mentioned. The average quantity of poison introduced by a bite was found to be in the case of vipera ammodytes 0·065 gramme, the maximum and minimum being respectively 0·17 and 0·01 gramme, all the bites being after at least three days' abstinence from biting. When the bites were repeated one after another, it was found that from three to five bites were sufficient to use up all the poison. In the case of vipera berus only about 0·03 gramme was delivered per bite. The rattlesnake delivered ten times that amount, or 0·3 gramme. A snake which was first curarised and then injected with muscarin presented no increase in the poison secretion; indeed, no means is at present known of increasing or diminishing this secretion. Various monads were apparently unaffected by a 2 per cent. solution of snake poison; spermatozoa also lived for hours in fresh, neutral, or alkaline solutions, but were killed immediately by an old acid solution. Bacilli and bacteria not only lived but multiplied in solutions of snake poison, so that it is evident that this cannot be a general protoplasm poison. A large number of observations on the physiological effects and post-mortem appearances are given which are well worth attentive study. The paper being published in German is fortunately accessible to most scientific men. Regarding the lethal dose for different animals, the author remarks that it is impossible to give it with any approach to scientific accuracy, for the fresh poison does not always contain the same amount of water, and the inspissated substance contains albumen and other indifferent substances, the percentage of the active principle being entirely unknown. At all events, snake poison is not to be compared with the most toxic alkaloids, as the latter prove much more rapidly fatal even in far smaller doses. It is to be remarked that the young of mammalia during the first four days of life are less affected by snake poison than adults, even amongst animals which are peculiarly susceptible to it; thus while a full-grown rabbit will die in from one to five minutes after a bite from a large rattlesnake, a rabbit a few days old will live for from ten to fifteen minutes after a similar bite, and a very young kitten will survive a bite some three hours. The reason of this difference is probably the undeveloped state of the central nervous system. The best therapeutic means for combating snake-bite are undoubtedly restoratives, especially preparations of ammonia, as they raise the blood pressure, but they are only of service in slight cases; in severe cases these remedies increase the hæmorrhage of the lungs and other organs. The American plan of giving large doses of alcohol is erroneous in principle, because, while it is true that in small doses alcohol stimulates the vaso-motor nerves, in large doses it paralyses them. Lacerda's treatment by permanganate injections into the venous circulation has proved useless in all cases where a really lethal dose of the poison had been given, and appears to rest on an erroneous assumption. Special experiments regarding hypodermic injections of permanganate in the locality of the bite are still required, but its usefulness is very doubtful, for whenever a lethal dose is inserted it is so rapidly absorbed that the permanganate injection is almost sure to be too late to do any good. At present a physiological antidote cannot even be conceived to exist, as we have no means of opposing the paralyses of the spinal cord, the intra-cardiac terminal branches of the vagus, the cardiac ganglia, the splanchnics, the respiratory centre, &c. The treatment must, therefore, be conducted on other lines, and Dr. Feoktistow is about to commence a series of researches in a new direction altogether, the nature of which he does not indicate. It must be remarked that death frequently follows snake bites after a prolonged period, and is due not to any direct toxic action, but to the morbid changes which have been set up in vital organs. This chronic poisoning, as it may be called, frequently follows doses of smaller amount than those which are immediately lethal.

"BETTER THAN NOTHING."

THE British public is sorely in need of "a new set of images," according to Lord Beaconsfield. Conventional language, however, dies hard; and the satire of "Tancred," though of forty years' standing, has not succeeded in laughing down "last not least"; "crowned with success"; "leave no stone unturned," and replacing them by fresh equivalents. "Wise saws," too, would be all the better for revision, if not for actual readjustment; nay, even more so than the usages of speech; for they assume a certain wisdom, and even authority, insomuch that we are often duped and dominated by them. Mr. Goschen, on a memorable occasion, has shown how many abuses, how much *laissez-faire* legislation, owe their longevity or actual existence to the phrase "after all," the germ of a great deal of the practical torpor that entrenches itself behind "let well alone." For us medical men there is another phraseological offender, almost as mischievous in the sphere of health as its congener, "after all," is in that of politics. At this season, when a temporary break in routine life hurries off so many citizens to the foreign health-resorts or watering-places, there is no phrase so frequent on the lips of the holiday-taker as "better than nothing." The over-wrought curate or fagged lawyer runs abroad to this or that fashionable "kur," to take so many baths or daily beverages or massages as the case may be, and if it is suggested that the course is insufficient, or the time spent over it too short, the answer is very apt to be "Yes; but it is better than nothing." Now, there is a very grave risk in such proceedings—a risk to which the non-medical public seem but little alive. Like every other therapeutic agent, a mineral water, whether as a beverage or as a bath, must be taken, when indicated, in certain proportions, under certain conditions of time and circumstance, and subject to certain modifications during the course. Repeatedly the home physician has to treat cases of chronic disease where all the symptoms have been seriously complicated through the disturbance wrought on the patient by foreign mineral waters used just often

enough, or just long enough, to worry the system—to set in operation a series of blood changes which, before they result in the expected good, must complete a certain well-understood cycle. A powerful alterative, in fact, has been commenced by the patient, but it has not been followed up to its proper issue—it has been arrested in its course, so as to be operative only to complicate, not to cure. This is peculiarly the case with those waters that contain arsenic in varying proportions, the partakers of which, having received benefit from them once, resort to them again often on their own account, and think a few days of their use, if not all that could be wished, at least "better than nothing." The same may be said of the massage. A sufferer from incipient atheromatous degeneration goes abroad to put himself under some well-known *masseur*. He has twelve days at his disposal, and he employs them in a dozen operations at the hands of the powerful manipulator. He does not realise that the accelerated metabolism—the histolytic waste—caused by the *masseur* is in excess of his power to repair it, and, deceived by a certain immediate sensation of lightness or nimbleness, he perseveres to the twelfth day, and returns home to find himself in the condition of an athlete who has been over-trained, with perhaps permanent damage done to the walls of the heart. "Better than nothing" in his case has been "worse than none at all." He had much better have kept out of the *masseur's* hands than have undergone a daily-recurring series of muscular exhaustions more depressing than a three hours' brisk walk each day would have been. As with the mineral water so with the massage; a graduated interval has to intervene between each dose or each operation. Time must be given to the system to recover from the shock of the new series of conditions imposed on it. But the duration of this interval, as, indeed, the resort to the "kur" in the first instance, can be regulated with safety by the physician alone, whose painful experience it often is to fight a losing battle in attempting to retrieve the *dyscrasiæ* or the systemic exhaustion induced by the patients acting on the fallacious half-truth involved in "better than nothing."

THE PERCUSSION LIMITS OF THE STOMACH.

IN a paper in the *St. Petersburger Medicinische Wochenschrift* on the boundaries of the stomach and intestinal canal, by Dr. P. Jaschtschenko of Rostoff on the Don, the view of Traube and some other anatomists, that the stomach when empty falls back and does not lie in apposition with the abdominal or chest wall, is controverted; also his belief that the fuller the stomach is the lower its inferior border lies. According to Dr. Jaschtschenko's observations, the inferior border of the transverse colon extends as far downwards as the umbilicus; the superior border, which is 6 centim. higher, lies at a distance of 4 centim. below the sternum. When the gut is quite empty, the inferior border lies a little higher, or 1 centim. above the umbilicus. In the right and left hypochondriac regions the superior border passes under the costal arch, being covered on the right side by the lower border of the thorax and the lower border of the liver, and on the left by the lower border of the thorax only. If the left half of the transverse colon and the upper part of the descending colon are full, the stomach being empty, a more or less dull percussion sound will be obtained over the lower part of the thorax on the left side, but above this there will be a tympanitic note up to the inferior border of the lung. If a part of the colon is empty, the stomach being full, a dull note will be obtained over the stomach, and a tympanitic note over the transverse and descending colon—that is, when the individual is in a standing or sitting posture. When he is lying on his back there will be a tympanitic note all over, with the exception of course of the region of the spleen. It is known that the superior border of the stomach lies against the lower border of the left lung, its inferior border coinciding with the transverse colon. This never changes its place, the filling of the stomach causing the dulness to extend from below upwards, not from above downwards, as Traube thought. Again, the stomach when empty does not collapse and fall back, for it is always under these circumstances distended with air. After death, in consequence of the loss of tone of the diaphragm, the abdominal organs rise somewhat above their position during life.

FLOODS IN THE ISLE OF DOGS.

THE floods in the Poplar district have endangered the health of the entire neighbourhood. Under the boards, in the basement of the houses, the filth left by the subsiding waters gives off the most powerful odours, and is considered as little better than sewage. It will be no easy matter to render such houses healthy again. Disinfectants are distributed, but this in itself will not suffice; it may only help to conceal the danger. Cannot the unemployed be set to work to scour out these houses, scrape the deposit off the surface of the walls, lift up the floor boards, and clean out thoroughly whatever may be underneath, thus making all dry and wholesome again? The public authorities are face to face with the prospect of a serious epidemic, which will involve much suffering and considerable outlay. It would be more economical, and, above all, more humane, to prevent such an epidemic by taking immediate and energetic measures. This might have the further advantage of finding work for some who are actually suffering from want, and by giving them the means of earning their daily bread contribute in another way to the maintenance of public health. We should therefore recommend the local authorities to at once organise bodies of men to clean all the houses, leaving the possibility of recovering some of the outlay from the house-owners to be decided after the present pressing danger has been removed. Even if in this the authorities fail, and are compelled to bear the whole expense, it will be, we maintain, cheaper than an epidemic.

COLOUR AND VISION TESTS FOR SEAMEN.

THE practically important subject of colour-blindness deserved more careful treatment than the passing notice allowed it in a recent meeting of Parliament. Its very serious consequence in the case of railway officials has long been recognised, and has led the companies to examine their servants carefully with reference to the state of their colour sensation. It has been suggested that seamen might with advantage be subjected to tests of a similar kind. At present the examination undergone by railway *employés* in respect of ordinary visual accuracy and of colour perception is more particular and also more general than that applied by the Board of Trade to seafaring men. The railway companies commonly submit the eyesight of their servants, virtually their whole staff, to a series of careful tests for colour and for ordinary vision. In the mercantile marine, as far as we can learn, the tests for near and distant sight are not insisted on by the controlling board, and a knowledge of those for colour is required of officers only. It is not quite clear to what extent accuracy of colour vision is essential to the ordinary seaman. As a rule, his report of a light in any position is at once ratified by the officer of the watch, who is accountable for its further definition. Consequently the seaman's personal responsibility is not great, and the quality of his colour sense has evidently for this reason received but scanty attention. The same argument would doubtless be used to excuse his inability to read accurately the signals assigned by the marine code for daily use. After making every such allowance, however, there appears to be substantial reasons why the

authorities should exert their influence in the direction of reform as regards this question. It is certainly desirable that freedom from ordinary errors of refraction should be required of officers, and we would say of men also, seeing that for the duties of a "look-out" acuteness of sight is often most necessary. Nor is it at all clear why seamen of the grade of warrant officers are not subjected to the same visual tests as officers of a higher class. We have no desire to hamper with needless restrictions a service which as a rule works well, and there is doubtless a much more constant call for accuracy of sight on the railway than at sea. Still the laxity allowed in the latter case is in striking contrast with the strict method observed in the former, and the dangers of the shipping-crowded port are neither few nor petty. It is probable that these risks, if not those of the high seas, would be lessened if even the sailor before the mast could always be justified in believing his eyes.

A SEASIDE DANGER.

IN spite of much careful instruction in the meaning and treatment of infection, there are still many to whom the mention of its dangers and its duties apparently conveys but little sense of responsibility. Among ignorant members of the working class one finds a prevalent unconcern, which is perhaps hardly to be wondered at. Among the more intelligent section of the population something of a truer insight might be looked for; but even here the careless or wilful callousness occasionally displayed in regard to this matter is remarkable. In an instance lately reported to have occurred at a northern watering place, the circumstances, as stated, display an unusual dulness of perception in this particular. A lady is said to have requested the use of a separate bathing machine for two of her children, on the plea that they were suffering from scarlet fever and must not be allowed to bathe with two others who were free from it. In other words, the safety of her own family was a consideration to be remembered, but that of others who might afterwards use the infected machine was of no consequence. The machine keeper very properly declined to grant this absurd and selfish application. We have the doubtful satisfaction of learning more than one lesson from this incident. In the first place, it is evident that the care of those who own and let vehicles, whether for bathing or other purposes, is in vain unless the public generally will assist them in protecting its health from wanton or careless injury. Further, we learn, and not for the first time, that children convalescent from infectious illness are sent to the country to recruit while still capable of communicating the disease. Thirdly, it is evident from the above narrative that the children may be heedlessly subjected to a danger as real as, if not more so than, that of the original illness—the risk of nephritis from exposure of the peeling skin surface to cold. We would fain hope that the facts of this case as reported are capable of some other explanation than the above.

GENITO-URINARY SURGEONS.

WE have before us "the Preliminary Programme of the American Association of Genito-Urinary Surgeons," for its meeting to be held in Washington on Sept. 18th, 19th, and 20th. There are no less than thirty-four communications on this preliminary programme The expression "Genito-urinary Surgeons," which does not seem to us a happy one, indicates the disposition to erect a new specialty, which we trust will be reconsidered. The very enumeration of subjects will show the diversity of the complaints which are to be suggested as the special care of the genito-urinary surgeon: The effect of rapid changes of altitude in advanced interstitial nephritis, operations on the kidney, syphiloma of the vulva, the Filaria Sanguinis Hominis in the United States, especially in its relationship to chylocele of the tunica vaginalis testis, the prophylaxis of syphilis, demonstration of a perfected evacuator, and an improvement in the method of removal of débris from the bladder, &c. We readily grant and rejoice in the recent improvements of surgery in its application to the kidney and bladder and the related parts. But all this has been accomplished without the creation of a new specialty and without disjoining the operators from the great body of their surgical brethren. It is not a wholesome sign, this tendency for a group of men to fly off from the great body of their brethren and put a special label on themselves. Where is it to stop? Is syphiloma of the vulva to be regarded as something apart and special; or can it be separated without harm to the general conception of the case in which it occurs? Admitting that many of the local affections enumerated in this programme are highly important and demand exquisite surgical skill, can they be regarded as the special care of "genito-urinary surgeons" without narrowing surgery itself, and without risk to that larger view of local disease which often see sits origin in other than local causes? One thing is certain, that the men in our British schools who have shed most lustre on the surgery of these and other parts are general surgeons, in general hospitals, who would refuse to be labelled the surgeons of a part and not the whole of the body.

OVER-PRESSURE IN SWISS SCHOOLS.

IN the education of youth the Swiss Republic yields to no European state—indeed, much of the system in operation throughout the schools of France and Germany in particular owes its initiation to Swiss precept and example. In return, Switzerland is not slow to take hints from her neighbours, Latin or Teutonic, and the controversy that has of late years been agitating these countries as to whether or in what degree "over-pressure" exists in their schools has drawn her attention to the possible prevalence of the same evil in her midst. The Medico-Chirurgical Society of her chief canton (Berne) has just resolved to evoke what information on the subject may be scattered throughout the Confederation, and has offered to public competition a prize or prizes for the best and next best essays on the following question: "Up to what point is there ground for entertaining the criticisms which have been made from a medical point of view on the intellectual over-pressure of children in the schools of a Swiss territory?" The essayist must have restricted his observations to a given area of the population, which shall comprehend education at establishments of different characters; from those he will have to draw precise etiological conclusions as to the effect which too severe requirements imposed on the pupils may have upon the health of these latter; he must have studied the relative proportion of the cases of illness occurring in the educational establishments under his observation; and, lastly, he is warned that an essay of a purely theoretical character, or a mere compilation from books embodying facts which he has had no means of personally examining, will be excluded from the competition. A sum of 800 fr. (£32) is set apart for the successful competitors, whose essays will become the property of the Society; permission, however, will be granted them to publish their essays at their own expense on condition that a limited number of copies be put at the Society's disposal. The essays must be written in the French or the German language; they must be provided with a motto, and they must be accompanied with a sealed envelope containing the writer's name and address. June 30th, 1889, is the date on or before which the essays must be lodged with Professor Korker, Berne, the President of the Medico-Chirurgical Society. So that in about a

year's time the educational world may have an opportunity of profiting by the opinion of Swiss experts on a question which, in greater or less degree, has brought physician, schoolmaster, and legislator into keen, if amicable, controversy throughout the scholastic centres of Europe.

"SYRRHAPTES PARADOXUS."

A LITTLE pamphlet has just been published by W. B Tegetmeier,[1] which contains an excellent chromo-lithograph of Pallas' sand grouse and an account of its characters and habits, and of the successive appearances it has made in Europe. The bird differs so essentially from the other and better known sand grouse which constitute the genus Pterocles, that it has been made the type of a new genus, Syrrhaptes, from *συῤῥάπτεω*, to sew together; because the toes, except the last joints, are closely united. The genus includes only one other species, a native of Tibet. Pallas' sand grouse, Syrrhaptes paradoxus, is one of the most characteristic birds of Mongolia. In summer they migrate to the north, but winter in the Gobi desert. The principal food of the enormous flocks that are there found consists of the seeds of the Agriophyllum gobicum. At sunrise they leave their roosting-places, and fly very fast and very low for tens of miles to their drinking-places, describing a circle before settling, to assure themselves of the absence of danger. They construct no nest, the eggs being deposited on the sand. These are three or at most four in number, elliptical, yellowish-grey in colour, with reddish spots. The female does not sit on the eggs very closely, but leaves them when approached within twenty paces. Those that were shot in England were found to have in their crops the seeds of Lotus corinculatus, arenaria, polygonum, poa, and Lepigonum marinum. Their flesh is very delicate and pleasant to the taste. The present is the second great migration of these birds into Europe. The first took place in the year 1863; and it is remarkable that Professor Newton was able to predict that a repetition of the irruption would take place, partly from their natural increase in numbers, and partly from his observation that the birds were so strong on the wing that they were able to beat the falcon in rapidity of flight.

STRIKES AND SWEATING IN PARIS.

The Times, in an article on Sweating in Paris, gives some figures which go far to prove that the workpeople of Paris, especially the women, are as poorly paid as the victims of the sweating system in England. Some of the sums accepted by sweaters for the making up of various articles of clothing are very similar to the prices mentioned in the course of our reports on sweating in the provinces. If this is the case, then the condition of affairs, so far as public health is concerned, must be worse in Paris than in the large industrial centres of England. The drainage and the ventilation of Paris houses are very unsatisfactory. Disinfection and isolation are not obligatory. Thus, whatever the danger of contaminating clothing and other articles in England, this risk is infinitely greater in France. We would put this phase of the subject forward, and trust it may elicit the attention of social reformers in France. More important than this is the undoubted fact that the reduction—equal to 50 per cent. within the last six years—of the rate of wages paid to women working in Paris has greatly increased immorality in that town. Women are often at work all the week to earn only four shillings, and of course it is impossible to live on this sum. No wonder that general dissatisfaction prevails among the working classes. The strikes in which men only have taken part are also an indirect reflection of what the workwomen suffer. It must further be borne in mind—and this has a very material effect upon public health—that provisions, the first necessities of life, are much dearer in Paris than in London. To provide the municipal receipts all articles of food are heavily taxed as they enter the town, and these *octroi* dues stand in the stead of our rates and taxes. But they weigh very heavily upon the working classes, especially on the navvies, who, in consequence of their out-door work and great physical exertions, require more food than workers engaged in other occupations. Under these circumstances, 4½*d.* per hour is not sufficient pay; and the Paris municipality in giving 6*d.* an hour to all who work for the town has set a good example.

[1] The Field Office, Strand.

THE CHOLERA IN SICILY DURING 1887.

MR. WILLIAM STIGAND, in a consular report from Palermo, gives some account of the serious conditions with which cholera in Sicily was associated in 1887. In Palermo, where the mortality was not so excessive as in some other parts of the island, he states that, owing to the ignorance prevailing, the cholera induced a condition of savage panic. Vegetables, fruit, and fish were regarded with suspicion; lean and gristly beef reached a famine price; the richer classes were regarded as disseminating the poison with a view of exterminating the poor; and both sisters of charity and medical men were stoned unless protected by a military escort. Cleanliness in its most elementary form seems unknown, and the result is that the most filthy odours prevail, and that wholesome water is rarely procurable. In Messina, according to Vice-Consul Rainford, the accumulated filth of the back streets found its way during a storm on Sept. 8th into the terra-cotta water conduits, and immediately afterwards cholera broke out. Panic ensued, and, whatever the cause may have been, we regret to read that "many of the chief medical men fled, as well as numerous apothecaries"; food was most difficult to procure, and had it not been for the cheap kitchens and help afforded by a voluntary society known as the "Croce d'Oro" a numerous population would have starved. Nothing but education can remedy such a state of things.

WINTER HÆMOGLOBINURIA.

DR. A. MATIENZO, writing in *La Escuela de Medicina*, a Mexican medical journal, reports a case of paroxysmal, or winter hæmoglobinuria, which has been under his care. The disease is of course not very common anywhere, and we gather from Dr. Matienzo that it is almost unknown in Mexico. The patient was a man of over seventy years of age, who as a rule enjoyed good health, and was particularly active and hearty for a person of his time of life. About half a dozen years ago, when starting for a hunting expedition one winter's day, he felt his feet very cold and swollen, and when he arrived at the rendezvous he noticed that his urine had the appearance of being tinged with blood. He went on with the expedition, however, the exercise bringing warmth to his extremities. In a few hours' time the urine which he passed was free from red colouration. This was the first appearance of the affection, and he seems to have consulted no medical man until December, 1886, though he had passed bloody urine occasionally every winter after getting his extremities chilled. When seen by Dr. Matienzo he complained of extreme cold in the feet, rendering the toes quite numb. The hands, nose, and ears were cold and livid, there was also slight headache; pulse and temperature were normal. The urine was dark but clear, and when treated by heat and nitric acid presented a solid mass of reddish albumen. On microscopic examination, not a red corpuscle could be seen. The diagnosis, therefore, was hæmoglobinuria. The guaiacum test was successful; crystals of hæmin were also prepared

The urine, on spectroscopic examination, presented the two absorption bands considered to be characteristic of oxyhæmoglobin, and one more to the left due to methæmoglobin. The treatment adopted was of a very simple character, the object being to produce reaction and to enable the patient to recover his natural warmth. A cup of hot tea, with a little alcoholic stimulant, the patient being kept in one room, was all that was needed. The attack passed off, and the urine regained its normal character in a few hours. The only treatment which Dr. Matienzo considers likely to be of any value is the avoidance of cold and chills as a precautionary measure. In such a climate as that of Mexico, it is of course more practicable for a patient to arrange to remain indoors in very cold weather than it would be in latitudes where cold weather is of longer duration.

RETREATS FOR POOR INEBRIATES.

POOR INEBRIATES are poor indeed. They spend what little money they have in drinking, and there is no legal provision for their maintenance in those Retreats which are established under the Habitual Drunkards Act, and which are practically used only by the well-to-do classes. It may be said that habitual drunkards are not entitled to consideration; but this will scarcely be said by medical men, who know the morbid character of the dipsomaniac habits. They at least will appreciate a benevolent experiment, which is being tried at Croboro' by Lieutenant-Colonel T. M. Whale, R.M., that of an industrial farm on which the dipsomaniacs are said to be supplied with healthy and constant occupation, placed under partial restraint, and supplied with wholesome food. More than half the patients are destitute and pay nothing, and the others only 10s. a week. No wonder that there is a deficiency of £250 in the funds. The experiment seems to us a most interesting and benevolent one, and we trust will receive support. It is said also to have been a successful one, as nine out of eleven cases considered incurable have received permanent benefit. Subscriptions should be sent to the hon. secretary at the Industrial Melnah Farm, Croboro'.

THE INFLUENCE OF TYPHOID FEVER ON SOME OTHER DISEASES.

THAT diseases characterised by hyperkinesis may disappear at the onset of typhoid fever is fairly well known as regards chorea. Couturier has observed a case of disseminated sclerosis in which great amelioration of the symptoms was apparently produced by an attack of typhoid fever, the ankle clonus and other exaggerated movements being notably diminished. The difficulty, however, of separating some cases of spinal sclerosis from functional spasmodic paraplegia must be remembered. A sudden event, or one of some intensity, often makes a difference in cases of neurasthenia, but the difference is not always in the direction of improvement; a fright has cured paraplegia and, on the other hand, has made paraplegia worse.

TYPHOID BACILLI IN THE KIDNEYS.

DR. KONYAEFF has published some researches, which he has made with the help of Dr. N. V. Uskoff, on the microscopic structure of some little nodules found in the kidneys of typhoid fever patients, in twenty-one cases out of 120 post-mortem examinations of bodies dead of this disease in the Alexandroff Hospital in St. Petersburg during the year 1887. The preparations were stained with a solution of methyl in dilute spirit and fuchsine in a 5 per cent. solution of carbolic acid. In all the cases examined there were found in the centre of the nodules colonies of slightly coloured bacilli precisely like those of typhoid. No others were seen. In two cases these were successfully sown in nutrient jelly, and from them a double kind of colony was developed exactly like typhoid colonies. Potato cultures were also reared, and the microscopical examination of these left no doubt that the jelly cultures were cultures of true typhoid bacilli.

ELECTRIC RAILWAY ON THE BÜRGENSTOCK.

FROM Thun, under date August 6th, a correspondent writes:—"Among the many favourite resorts on the Lake of Lucerne at which the holiday maker can enjoy the pure air, the delicious quiet, and the exhilarating scenery of the Alps, the Bürgenstock has long held a prominent place. The hour and a half consumed between Stans-stad, the station on the lake, and the hotel on the Bürgenstock used to be felt as the most wearisome out of the twenty-four from the starting-point in London; but now that one drawback to the pleasure of the journey has been removed. On the 8th inst. was opened the electric funicular railway, which begins just at the base of the mountain at Kehrüten, the new landing-place; and in a few minutes, at the cost of one franc, the traveller will find himself transported, as pleasantly as in a balloon, to the hospitable portals of the Bürgenstock Hotel. The old tedious journey round by Stans stad and up the mountain side—the latter stage of it costing from ten to twenty francs—is now a thing of the past; and even those who do not intend to make a sojourn on the Bürgenstock, but who would not like to miss the glorious prospect it commands, can, from Lucerne, reach the hotel by lake and electric railway in the forenoon, ascend to the Hamztschwand or summit, and enjoy the view of the lake and its sisters, the Sarnen, Sempach, Baldegg, Hallwyl, and Zug, and of the peaks of the Rigi, Pilatus, Mythen, Weissenstein, and the Alps of Glarus and Unterwalden, with part of the Bernese Oberland, returning to Lucerne in time to catch the Milan express, which reaches Basle in the evening. The swift flowing Aa, at Buochs, supplies with its 150 horse power the force required for the railway, as well as for the electric illumination of the hotel. It is but fair to add, however, that until the weather improves Switzerland is no place for the holiday maker with limited time at his disposal. For three weeks, with but a few partially sunny days, the rain has fallen in torrents, and as I write the cold is so severe that we have had to light the fires, which are not usually kindled till October."

DO LIBRARY BOOKS SPREAD INFECTION?

A GOOD deal of discussion having taken place on the subject of the spread of infectious diseases by means of the books in circulating libraries, the Dresden municipal authorities have had a thorough experimental investigation of this question conducted. A number of much-used volumes from the town library were taken for the purpose. The dust from the leaves and covers was sown in nutrient media and cultures reared, the result being that no microbes belonging to infectious diseases were found—the dust being, in fact, nothing but ordinary dust of a harmless character. Again, the dirtiest leaves in the books were rubbed first with the dry finger and then with the wet finger. In the first case scarcely any microbes were found on the finger; in the second case plenty were found, but all appeared to be of a non-infectious character. Especially is it noted that there were no tubercle bacilli. Lastly, books were soaked for two days in spirit containing 10 per cent. of carbolic acid. This treatment destroyed all the bacilli, and proved harmless to the volumes. The conclusion arrived at was that the danger of circulating libraries spreading infection is very slight, but a recommendation is given to dust books well before reading them, and never to wet the finger in the mouth for the purpose of turning over the leaves.

LIVER ENLARGEMENT IN RICKETS.

RICKETS is credited with the power of producing a large liver and spleen. Dr. Edgar Hogben, writing in the *Birmingham Medical Review* (August) describes histological changes to account for the enlargement of the liver. It is well known that the visceral enlargement was believed by Dr. Dickinson to be due to infiltration by some translucent material which was not albuminoid, because it did not give the characteristic iodine reaction. The changes described by Mr. Edgar Hogben are very interesting, and amount to those met with in hypertrophic cirrhosis. A pericellular growth was not noticed, the overgrowth of connective tissue being chiefly around each lobule. In the livers of young infants, not apparently suffering from any disease, an increase (as compared with the adult) in the number of nuclei in the branches of Glisson's capsule is practically a normal phenomenon. Dr. Hogben admits the possibility of alcohol playing a part in the causation of the cirrhosis. A long past scarlatina or other acute specific disease may also be a cause of cirrhosis. The suggestion has been made that there is a general biliary hepatitis coincident with the catarrh of the mucous membranes of the stomach and bowels, so common in rickets.

GALVANO-PUNCTURE IN GOITRE.

DR. WEINBAUM reports, in a recent number of the *Vrach*, two cases of goitre in girls, occurring shortly after menstruation had been established, which were entirely cured by passing the current from a battery of twenty cells through the tumour by means of two gold needles inserted into opposite sides of the growth for the depth of a few millimetres. In one case 150 sittings were required. These were prolonged during eight months, as small eschars frequently formed round the cathode, and it was thought well to give these time to heal before repeating the treatment. Each sitting lasted from ten to fifteen minutes. It is noteworthy that, after the tumour in this case had to a large extent become absorbed, the girl's general condition began to give rise to some alarm, cough, night sweats, and amenorrhœa coming on. However, by means of arsenic and iron, the patient ultimately recovered, and has enjoyed excellent health since, the only signs of the goitre being the cicatrices due to the needles.

EFFECT OF ACIDS ON THE SENSE OF TASTE.

THE intensity of the sour taste of an acid appears to be related to its chemical composition. Dr. Corin found that the intensity of the sensation of sourness produced by different acids of an equal degree of strength was not the same, neither was it proportional to the amount of replaceable hydrogen. The effect on the sense of taste was found, however, to vary with the atomic weight with solutions containing an equal amount of acid hydrogen replaceable by metal; so that the acid taste was stronger in proportion as the molecular weight was lower.

POISONING BY HEMLOCK.

THE sad occurrence last week at Consett, county of Durham, noted by our Newcastle-on-Tyne correspondent, by which two boys, brothers, were poisoned in a rather unusual way, has directed attention to hemlock. It is one of the oldest vegetable poisons, and yet it is one that is not popularly well known. It does not appear whether the plant was the *conium maculatum*, or the *circuta virosa*, or water hemlock, or cowbane; probably the latter, because it is most common in the north of England and in Scotland, and because it has a more hollow stem. The hollow structure of the stem would very likely cause it to be selected by the boys for the purpose of shooting haws through, while the long time it would be kept in their mouths would favour the absorption of its juice, which is a virulent narcotic acrid poison at all times, but at this season most active. The coroner's remarks were timely and judicious; he said "he hoped this matter would be well ventilated in the newspapers, so that parents might warn their children of the dangerous nature of some of these plants. He thought the time of adults would be profitably occupied if they occasionally took their children for walks through the fields, and explained to them the things which were dangerous."

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS IN WASHINGTON.

WASHINGTON is to be honoured again by another gathering of physicians and surgeons. It is called the first Triennial Session of the Congress of American Physicians and Surgeons, and will be held on September 18th, 19th, and 20th. A number of eminent physicians and surgeons from abroad are expected, including Professors Esmarch and Gerhardt, Drs. Rafael Lavista of Mexico, Dr. J. L. Reverdin of Geneva, Sir Spencer Wells, Sir William Mac Cormac, Drs. Priestley, Ord, Grainger Stewart, and Ferrier, and Messrs. Lawson Tait, Victor Horsley, Bryant, and Annandale. About thirteen separate medical associations of specialistic character are advertised to hold meetings about the same time.

TYPHUS IN SALFORD.

DURING the spring of the present year typhus invaded a well-known fever haunt in the district of Regent-road, Salford, and during the second quarter of the year the disease has shown a greater prevalence there, fifteen patients having been removed from that quarter to the Wilton Hospital. According to Dr. Tatham's quarterly report, in which some account is given of the precautionary measures adopted, Salford would probably have been suffering severely from typhus at this time had it not been for the effective aid received from the medical practitioners of the borough under the clauses of the Notification Act. Both small-pox and typhus have been held in check by means of the provision for notification.

THE CASE OF THE LATE GERMAN EMPEROR.

THE statement that has appeared in some of the German papers that Sir Morell Mackenzie does not intend to publish a reply to the allegations of the German physicians is, we are informed, unfounded. It is understood that his answer will be issued in the course of a few weeks simultaneously in German and in English. The English edition will be published by Messrs. Sampson Low, Marston, and Co., of St. Dunstan's House, London.

A PANIC is reported to exist at Jacksonville, Florida, owing to the spread of yellow fever. A rigid quarantine is enforced, and disinfectants freely and generally used. Large bonfires, with mixtures of pitch and sulphur, are maintained in the infected districts. No fever has as yet appeared in St. Augustine and other towns in Florida, but the inhabitants are said to be in a state of natural alarm.

AT the University of Tomsk, Dr. Stanislaus Zaleski, assistant in the Pharmacological Institute in Dorpat, has been appointed to the Professorship of Chemistry and Medical Chemistry.

IN an action for libel, tried on the 10th inst. at the Birmingham Assizes, brought by Mr. C. W. R. Iliffe, medical officer of the Coventry Workhouse, and coroner for North Warwickshire, against the proprietors of a Coventry newspaper, he obtained damages for £1000 for articles published in that paper charging him with complicity in what was known as the "Coventry Workhouse scandals."

BRIDES-LES-BAINS.

By H. BLANC, M.D., F.R.C.P.

I HAD heard so much of Brides-les-Bains—the Carlsbad Français, as they call it—from French colleagues at Cannes that I decided on paying the place a visit, to judge for myself of its claim to compete with its powerful German rival. The waters of Carlsbad and Brides have many points in common, both containing the sulphates of soda, of lime, and of magnesia, the bicarbonates of lime and of magnesia, carbonic acid gas, &c. The temperature of the waters of Brides is that of the colder Carlsbad springs—i.e., 95° F., but it could easily be warmed to the temperature of the Sprudel itself, as is done at Tarasp. However, for the present no arrangements have been made to do so. The salts of iron exist in the waters of Brides to a marked degree; the red ochre deposit is very abundant wherever the water flows, and a slight inky flavour is perceptible to the taste. Dr. Delastre rightly considers these salts of iron of great value in lessening the debilitating effects of the water when taken in somewhat large quantities. On the other hand, iron does not always agree with those who otherwise require alkaline purgative waters, and it is well that this fact should be insisted upon, to enablethe profession to select the cases where alkaline waters containing a fair percentage of iron are required.

From what I have seen during my three weeks' stay at Brides, and from kind information received from Drs. Delastre and Desprez, I am inclined to believe that these waters will agree best with the anæmic and the lymphatic; better with women and children than with men, always provided that the digestive organs have retained some power, and that the patient does not suffer from the painful forms of dyspepsia.

Dr. Delastre, in his able notice of Brides-les-Bains, states that these waters have a remarkable and special action on the liver, favouring the biliary secretion; and I agree with him that in catarrhal conditions of the bile ducts, or in deficient secretions of bile due to an anæmic condition with slow circulation, these waters must act favourably. They find also, as Dr. Delastre states, a good application in those who have suffered from intermittent fevers contracted in southern lands; and in those also who, without actually suffering from malarious fever, have long resided in the tropics, and whose portal system is passively congested; indeed, for these latter, Brides has better claims than Carlsbad, the chloride of sodium, and especially the iron these waters contain, stimulating nutrition, and acting favourably on the blood itself. Both Drs. Delastre and Desprez speak very highly from practical experience of the favourable influence of these waters on diabetes, when met with in anæmic and debilitated subjects. Brides is also much valued by French physicians in the treatment of atonic dyspepsia, attended with constipation or with chronic catarrhal diarrhœa. Their diuretic influence being marked, they are indicated in the gouty, in those suffering from catarrhal affection of the urinary tract, and wherever effete matter is not readily eliminated; finally, prescribed in large doses and assisted by vapour baths, they are supposed to lessen obesity.

In close proximity to Brides-les-Bains we find the powerful iron and chloride of sodium baths of Salins-Moutiers, a sea bath at the temperature of 95° F., to which iron in large proportions is added. These baths are of great value as a stimulant tonic, and act very favourably on those who are not liable to congestions. They are of great service to scrofulous and lymphatic children, and are prescribed with advantage in certain atonic uterine affections attended with considerable leucorrhœic discharge, congestion of the generative organs being greatly lessened by the combined influence of the Brides water taken internally.

Brides-les-Bains is situated in a pretty but very narrow valley some 1700 ft. above the sea; the neighbourhood is well wooded, replete with pleasant and shady walks, and rear at hand lofty mountains arise, whose glaciers contrast very beautifully with the green hills and fir-covered peaks which surround them. Brides is intensely hot during the fashionable season—i.e., July and August, but the place is delightful in spring and autumn, when the air is cool and bracing. The place is easy of access; the railroad for the present is completed as far as Albertville, whence the diligence or private carriages bring visitors to Brides in about four hours and a half, through beautifully cultivated valleys rich with vineyard and orchard, and dotted with picturesque villages.

If I could find a fault with Brides-les-Bains it would be about the food. I have rarely met with, in my many travels, better cookery or more attentive service, but for those undergoing the cure the dietary is decidedly too rich, too varied, and too abundant, and it must be a great trial to look on these good things and not dare touch them, as here, as well as at Carlsbad, those who take the waters are forbidden to eat pastry, butter, uncooked fruit, and highly-seasoned dishes. I suggested to my medical friends here that it might be advisable to have a separate table for those who drink the waters, where they would only find food adapted to their condition; but I was told that such an arrangement would not answer, that members of the same family, some drinking the waters, some not, would object to take their meals at different tables, and that moreover, as a general rule, those undergoing the cure carried out very faithfully the directions they had received regarding the kind of food they must avoid.

There is a small casino here where are found on a small scale most of the amusements and distractions so necessary to the French when they repair to a watering place for health's sake or for pleasure. A very fair band plays in the park after lunch, and again in the evening in one of the casino rooms, where the young people dance away for a couple of hours: "Early to bed and early to rise" being the motto all follow here. Apart from a few English and Americans, most of the visitors are French; polite, courteous, and friendly, they give a gay and pleasant look to the place, which although small is anything but dull.

I was very agreeably surprised to observe during my short stay here a marked improvement in several noticeable cases, and how much better some looked who on first arrival seemed too ill to reap much benefit from the cure. Several of the visitors had on a previous occasion taken the waters at Carlsbad, and they were loud in their praise of the benefit they had derived from their visit to Brides, feeling less depressed, less tired, and altogether stronger than they did while at Carlsbad.

In concluding this brief notice of this pretty little watering place, I believe that I am justified in saying that the waters of Brides-les-Bains, combined in some cases with the warm chloride of sodium and iron baths of Salins-Moutiers, are of great therapeutical value, and are indicated in many disordered conditions of the digestive, urinary, and other organs, especially to those who are benefited by the addition of small quantities of iron to alkaline, aperient waters. Brides-les-Bains is at its best in the spring and autumn, and as an intermediary station for invalids and others who spend the winter on the Riviera none better could be found.

PRESENTATIONS.—The departure last week of the two house surgeons, Mr. Coombe and Mr. Priestley, and the house pupil, Mr. Wightman, from the Sheffield General Infirmary, was made the occasion of a very interesting presentation. The nurses, servants, and patients of that institution showed their appreciation of the attention and courtesy they had received from those gentlemen by desiring their acceptance of a handsome salad bowl, a marble clock, and a pair of opera-glasses, bearing suitable inscriptions.—Dr. Clabburn, who is leaving Chiswick for Buenos Ayres, South America, has been presented by his personal friends and others resident in the neighbourhood, as a token of their regard and esteem, with a handsome gold watch and chain, and a portfolio containing an illuminated address, bearing nearly 200 signatures. The members of the Chiswick Police Force, to whom Dr. Clabburn was surgeon, have also presented him with a silver mounted walking stick.

Pharmacology and Therapeutics.

SALICYLIC ACID IN METRORRHAGIA.

DR. FELICI has found salicylic acid arrest the flow in two cases of metrorrhagia in a wonderfully short time, and thinks it should be tried extensively by other medical men in similar cases. His first case was one of carcinoma where the hæmorrhage had been constant and profuse, and had defied all ordinary styptic remedies; a plug of carbolised cotton wool, soaked in a solution of salicylic acid, was applied to the uterus, and completely arrested the hæmorrhage within a few minutes. The second case was one of simple metrorrhagia during the menopause, but of so violent a character that the patient became collapsed. Ordinary remedies were tried, with merely temporary effect. Finally, Dr. Felici introduced into the uterus a dossil of cotton wool soaked in a concentrated solution of salicylic acid on the end of the uterine sound. This arrested the hæmorrhage in a few seconds, and no return occurred.

COCOANUT AS A VERMIFUGE.

Professor Parisi of Athens when he was in Abyssinia happened to discover that ordinary cocoanut possesses vermifuge qualities in a high degree. He took one day a quantity of the juice and pulp, and shortly afterwards felt some amount of gastric disturbance, which, however, passed off in a few hours. Subsequently he had diarrhœa, and was surprised to find in the motion a complete tænia, head and all, quite dead. He made inquiries of the Abyssinians as to their knowledge of this property of the cocoanut, but they knew nothing about it. After returning to Athens Professor Parisi made a number of observations, which were most satisfactory, the tæniæ being always passed and quite dead. In only one case was the head wanting. He orders the milk and the pulp of one cocoanut to be taken early in the morning fasting, no purgative or confinement to the house being required. Doubtless pharmacists may, as he suggests, make cocoanut preparations which may answer the same purpose, and perhaps may prove rather more convenient. At all events, eating a cocoanut is a much less unpleasant ordeal than the usual dose of male fern, followed by a violent purge; and if it ultimately prove as efficacious as Professor Parisi seems to think, it will be an excellent addition to our list of vermifuges.

LINSEED AS A SUBSTITUTE FOR GUM ARABIC.

A correspondent of a pharmaceutical contemporary writes: "Linseed is recommended as a substitute for gum arabic. The seeds are first boiled with water for an hour, the resulting thick mass filtered, and then treated with twice its volume of 90 per cent. of spirits of wine. A flocculent white precipitate separates, from which the dilute spirit can be readily decanted. A yield of 10 per cent. of dried 'gummi lini' on the weight of the seeds taken is obtained. The gum forms a clear, grey-brown, fragile mass, which dissolves in water without taste or smell, similarly to gum arabic. Two grammes are sufficient to form an emulsion with thirty grammes of oil, which resembles the emulsion formed with gum arabic, both in taste and in appearance."

CREOLIN IN PURULENT OPHTHALMIA AND GONORRHŒA.

Acute and chronic purulent ophthalmia is satisfactorily treated, according to Dr. Margaritti, by means of a solution of creolin of the strength of 1 in 400. This is instilled into the eyes and used for moistening compresses which are applied externally. At first a burning sensation is experienced, but after about five minutes this subsides and the eyes feel much more easy, and the patient is able to open them without difficulty. Gonorrhœa which has resisted other treatment has frequently yielded in Dr. Margaritti's practice to irrigations, twice daily, with a solution of creolin of the strength of 5 to 8 per cent., administered through a hollow sound.

CASCARINE PASTILS.

Cascarine pastils (Tompsitt) are very useful and agreeable. They may be easily swallowed entire, and even chewing them does not cause disgust. We have frequently prescribed them, and with good results. Each pastil contains twenty minims of the liquid extract of the British Pharmacopœia.

COCAINE.

MM. Langlois and Richet have sought to determine the influence of the temperature of the body on the convulsions caused by cocaine. They first of all ascertained the general phenomena consecutive to intoxication with certain doses of cocaine. It was found that the more elevated was the temperature of the animal the less cocaine was required to cause convulsions. Dogs whose temperature was raised became more and more likely to develop nervous agitation. Cocaine itself causes an elevation of the temperature of the body before provoking convulsions; this elevation is an adjuvant to the convulsions; further, convulsions in their turn raise the temperature of the body; thus a sort of vicious circle is established. The only way to break this circle is to cool the animal by means of cold baths, and so prevent the favouring influences of pyrexia.

TREATMENT OF WHOOPING-COUGH.

M. d'Heilly treats this affection by means of a compound powder, composed of salicylate of bismuth, five grammes; powdered benzoin, five grammes; sulphate of quinine, one gramme; to be used as an insufflation five times a day. Michael employs powder of benzoin and quinine; Guerder, a mixture of boric acid and powdered coffee; Carlaz, subnitrate of bismuth and powdered benzoin. In the early stages, the mixture of one part each of quinine and bromide of potassium with two parts of starch is useful.

ICHTHYOL IN ERYSIPELAS.

Dr. Jadkevich, writing in the *Meditsinskoe Obozrenie*, recommends ichthyol in erysipelas, which he says gives better results than any other drug. He employs an ointment composed of sulpho-ichthyolate of ammonia and hog's lard in equal proportions, and he covers the parts to which the ointment has been applied, with the exception of the face, by means of varnished paper. Under this treatment all the cases recovered in from one to two days.

MENTHOL OINTMENT.

Menthol ointment (Shirley) is a useful mode of applying menthol. It is under many circumstances a better application than the pure crystal. As to there being menthol in the ointment in abundance, the merest trial on any skin possessed of ordinary sensation at once shows. Menthol ointment has in our hands relieved the infra-mammary pain of hysteria as well as more definite neuralgiæ.

THE OBSERVATORY OF MONT SOURIS.

(*From our Roving Correspondent.*)

THE enlightened policy of the municipality of Paris in fostering the observatory at Mont Souris for the scientific study of meteorology cannot be too highly commended, and the "Annuaire" just issued, containing a report of the work carried out during 1887, fully justifies the municipality for the expenditure which the observatory involves. I trust that those who are answerable for the sanitation of London will find time to fully consider at least those portions of this interesting year-book, which deal with the purification of sewer water as carried out in Paris. M. Albert Lévy, who is the chemist to the observatory, and who makes an elaborate report on the condition of the drinking water, also deals with the condition of sewer water and drainage water. As various statements have of late been made in the general press and elsewhere on the so-called Paris sewage farms, and as the question of the purification of the Thames is still, and is likely to be for some time, a burning question of national importance, I feel that I shall be serving the interests of your readers and the public by giving a summary of this report. M. Lévy says: "The refuse water of Paris, as well as part of the cesspool water, are brought by sewers to three collectors emptying into the Seine below Paris. Two of these collectors, one on either bank, empty 300,000 cubic metres daily into the Seine. The third collector receives the water from the slopes to the north of the Butte Montmartre and the higher regions of Paris, is situated at St. Denis, and receives 50,000 cubic metres daily. In 1867 the municipality commenced attempting to purify the sewer water by means of the action of permeable soil and vegetation, such purification having as

secondary consequences the disinfection of the Seine below Clichy and St. Denis and the fertilising of the irrigated ground. These experiments are still going on in the peninsula of Gennevilliers. Part of the water of the two first collectors has been pumped into the soil, while the water of the third collector falls by gravitation on to the plain of Gennevilliers. The water thus distributed in 1887 was 25,000,000 cubic metres."

From the above I gather that the total sewage water of Paris amounts to 350,000 cubic metres per diem, or 127,750,000 cubic metres per annum. Rather less than one-fifth of the whole is subjected to irrigation. The sewer water was repeatedly analysed during 1887, and the mean results of these analyses are given for each month for each of the two collectors.

The drainage of the subsoil at Gennevilliers has been very thoroughly carried out, the sewer water after permeating the soil finding an exit to the Seine by four main drains. The water from these drains has also been repeatedly analysed, and a comparison of the analyses of the sewer water and the drain water shows at a glance the effect of the permeable soil on the sewage. This result is given in the following table, which states the amount of the various ingredients in milligrammes per litre:—

	Lime.	Chlorine.	Organic matter.	Nitrogen.		
				Ammoniacal.	Albuminoid.	Nitric.	Total.
Sewer water (mean result)	205	74	44·5	20·8	3·4	4·3	28·5
Drains (mean result)	310	105	1·8	0·0	0·4	19·0	19·4

Stated broadly and shortly, the effect of the irrigation on the sewage water is to increase very considerably the lime and the chlorine, and to remove about 96 per cent. of the organic matter. The effect on the nitrogen in the water was very interesting. Of the 28·5 parts contained in the sewage water, 9·1 were apparently taken up by the herbage, 19 parts were oxidised, and only ·4 part was unchanged. This statement is, of course, only proximately true, for the varying conditions of rain and sunshine, heat and cold, would cause a varying concentration and dilution of the effluent. The mean result of the analyses of the drain water is given for each month of the year except January, when the continued frost probably hindered the operations. For the six winter months of February, March, April, October, November, and December the average escape of nitric nitrogen averaged 20·7, while for the five spring and summer months the average was 17·1. The maxima were in December (22·9) and February (23·9), and the minima in August (11·9) and September (14·6). In the former months the soil was dormant, while in the latter it was active, and the nitrogen found its way to the vegetable and fungoid growth. An interesting experiment was also carried on during the year in the laboratory at Clichy by M. Durand-Claye. This consisted in irrigating daily with one litre of Clichy sewage water a column of earth enclosed by glass plates, having a height of 2 metres and a superficies of $\frac{1}{10}$ square metre. The average result for the year is given below:—

	Lime.	Chlorine.	Organic matter.	Nitrogen.		
				Ammoniacal.	Albuminoid.	Nitric.	Total.
Clichy sewage	186	73	35·8	21·1	2·6	5·0	28·7
Effluent	262	71	2·6	0·0	0·4	21·0	21·4

This laboratory experiment shows results which differ in an interesting way from those obtained by irrigation in the open air. There was no increase of chlorine, and the removal of organic matter and nitrogen was slightly less perfect. The results of the Clichy experiment appear to be erratic, and seem to be difficult of explanation. I give below the total nitrogen for each of eleven months in the year, contained (1) in the Clichy sewer water, (2) in the drains of Gennevilliers (average), and (3) in the effluent from the Clichy experiment:—

	Clichy sewer.	Gennevilliers drains.	Clichy experiment.
February... ...	26·9	24·2	16·4
March	23·1	20·6	21·4
April	33·9	21·2	25·7
May	28·7	19·4	20·0
June...	27·1	18·8	17·7
July	20·6	21·3	13·5
August	19·5	12·1	17·7
September ...	30·9	15·1	21·2
October	34·7	19·0	25·9
November ...	32·9	18·6	30·9
December ...	37·2	23·3	19·4

Be the explanation of the variations in the amount of retained nitrogen what it may, the experiences of Gennevilliers and the experiment at Clichy both point conclusively to the fact that albuminoid and ammoniacal nitrogen contained in sewer water can be made to disappear under the influence of irrigation through earth.

Dr. Miquel has made a series of experiments on the effect of irrigation on the microbial population of sewer water. He says that the water of the sewers was found excessively impure, as might be expected; "it is not by thousands, but by millions, that the microbes in each cubic centimetre have to be reckoned." His mean results show that each cubic centimetre of the water in the Clichy sewer contained 6,090,000 microbes, while the number in the sewer of St. Ouen rose to 40,700,000. The St. Ouen sewage was thus between six and seven times richer in microbes than the Clichy sewage; and of these microbes about 20 per cent. were micrococci, while the rest were bacteria and bacilli. "It is my opinion," he says, "judging by my preliminary investigations that the varieties of microbes found in sewer water amount to over 1000. The species already known and described are lost in the excessively varied flora of dirty water. Whatever may be the amount of impurity of these waters, I can testify to the rapid and almost complete purification by means of broad irrigation." The results of the microscopic analysis of the water of the four drains of the peninsula of Gennevilliers afford a startling confirmation of this assertion. The average result shows that the water of these four drains contained respectively 54, 167, 905, and 5210 microbes per cubic metre. The last two figures show conclusively (according to Miquel) that the drains from which the water is taken are contaminated at one or more points in their course. In short, sewer water having an average of 23,000,000 of microbes per cubic centimetre when thrown on the soil of Gennevilliers returns to the Seine with an average of 1600. The mere fact of filtration through the soil is sufficient to render these waters 15,000 times more pure from the point of view of microscopic life. Surely these facts deserve attention from the Metropolitan Board of Works, which is attempting to purify the London sewage by the addition of half a grain of lime to the pint.

BEQUESTS AND DONATIONS TO HOSPITALS.—The late Mrs. C. H. Law French, of the Lindens, Gateacre, near Liverpool, leaves by her will £1000 to the Sea-bathing Infirmary at Margate, and £2000 to the Liverpool Hospitals. —The Misses Crowther, of Ash Villa, Newton-road, Leeds, have subscribed £200 towards the building fund of the Harrogate Bath Hospital. — From the recent Friendly Societies' demonstration at Kirkstall Abbey, Leeds, £40 has been allotted to the medical charities.—Count Carlo A. Clericetti, late of 58, Montpellier-road, Brighton, has bequeathed £1000 to the Sussex County Hospital, £400 to the Asylum for the Blind, Eastern-road, Brighton; £300 to the Brighton, Hove, and Preston Provident Dispensary; and £200 to the Sussex Eye Hospital, Queen's-road, Brighton.—The Calverley and Guiseley Cricket Clubs have handed over £25 to the Leeds and Bradford Infirmaries.— Donations to the building and general funds of the Great Northern Central Hospital have been received from Mr. H. R. Williams, of Lime-street, amounting to £31 10s.; and a sum of £37 13s. from the Amalgamated Friendly Trades and Benefit Societies.

THE CHEMICAL TREATMENT OF SEWAGE.

MM. P. CHARSTAING and E. BURILLOT have contributed to the Proceedings of the Académie des Sciences a carefully prepared account of the results obtained in Brussels by the method of rendering sewage innocuous by treatment with chemical reagents. In the course of their paper they remark that for the purpose in view there are two methods in actual use: "1. The method of irrigation, or the purification of sewage by means of the soil and cultivation—a method which is widely advocated and available when command can be had of large expanses of land adapted to this use, and when the water which has to be purified is not highly charged with putrescible matter. 2. Chemical methods, which have for some years past fallen into great disrepute, but which, in consequence of advances recently made and still possible in chemical science, demand a careful consideration."

They continue: "The first method has been much studied, we may say studied exclusively, in France. This very circumstance has led us to examine the value of the chemical methods, believing as we do that in the public interest no single plan which may contribute to the public health ought to be overlooked or neglected. Many methods of effecting the chemical purification of effluent sewage water have been proposed. The effluent water of the city of Brussels has been analysed with a view to determining (1) its composition, and (2) the alterations produced in its composition by chemical treatment with a view to its purification. The analysis gives the following result:—

"SEWAGE WATER OF THE CITY OF BRUSSELS.

				Taken from the mouth of the collectors.	*Purified.*
Appearance				Turbid	Limpid
Odour				Nauseous and ammoniacal	None
Chemical reaction				Very alkaline	Slightly acid
Dry residue per litre				5·357 grammes	0·697 gramme
Mineral matter				3·826 ,,	0·587 ,,
Organic matter &c.				1·531 ,,	0·110 ,,
Suspended matter				1·000 ,,	None
Composition of the organic matter dissolved in 1 litre of water.	Nitrogenous	Ammoniacal	Free ammonia	0·560 ,,	None
			Ammonia salts	1·510 ,,	0·011 gramme
		Nitrates		0·032 ,,	None
		Organic	Crystalloid	0·032 ,,	0·010 gramme
			Albuminoid	0·332 ,,	None
	Total nitrogenous matters			2·434 ,,	0·021 gramme
	Organic carbon			Not determined	Not determined
Composition of the mineral matter dissolved in 1 litre of water	Alumina			0·200 gramme	0·030 gramme
	Sesquioxide of iron			0·030 ,,	0·005 ,,
	Lime			None	0·300 ,,
	Magnesia			0·050 gramme	0·030 ,,
	Chloride of sodium			0·100 ,,	0·060 ,,
	Potash			1·970 ,,	0·037 ,,
	Silica			0·006 ,,	0·004 ,,
	Phosphoric acid			0·126 ,,	0·063 ,,
	Sulphuric acid (SO_4H_2)—in combination			1·344 ,,	0·058 ,,
Gas given off	Free ammonia			736·5 cub. centim.	None
	Sulphuric acid	By weight		0·0068 gramme	None
		By volume		4·5 cub. centim.	None
	Oxygen			None	5·00 centimetres
Composition of the mud suspended by the effluent water in the collecting mains. The water contains 1 gramme of this mud, comprising—	Organic matter	Nitrogen (organic)		0·060 gramme	None
		Carbon, Oxygen, Hydrogen		Not determined	None
	Mineral matter	Lime, Alumina, Iron		0·351 gramme	None
		Phosphoric acid		0·120 ,,	None"

They then proceed to discuss the analysis as follows:—

"1. *Organic matter.*—It will be seen from the preceding analysis that the effluent water upon the method of carrying away the whole of the sewage becomes very highly charged with organic matters, among which nitrogenous products predominate. The proportion of substances dissolved is about 5·35 grammes per litre in the effluent water of Brussels, whereas it varies in Paris from 2·59 in the Asnières main to 3·50 grammes in the Saint Denis main. There is a still greater difference in the proportion of nitrogen, for whereas the water in the Brussels main contains 2·434 kilogrammes per cubic metre of nitrogen in solution, and 60 grammes in the form of suspended matter, that of the Paris outfalls does not contain more than from 44 grammes at Asnières to 140 grammes at St. Denis of nitrogen in all forms. Lastly, the weight of putrescible organic matter is about 2 kilogrammes per cubic metre in the water of the Brussels outfalls, and does not exceed 910 grammes in that of Paris. The effluent water at Brussels after being purified by chemical processes is limpid and inodorous; its composition, no doubt, shows that it would not be fit for domestic use, but it is so far pure that if turned into a river it could not give rise to any infection, and, furthermore, it contains a sufficient quantity of oxygen in solution to allow fish and vegetable life of high orders to develop in it. Is the purification by the chemical process more perfect than purification in the soil? Reference to publications made upon the subject of purification in the soil shows that water so treated after separation from solid sewage retains from $\frac{1}{15}$ to $\frac{1}{5}$ of its original nitrogen. The foregoing analyses show that the whole sewage treated chemically retains about $\frac{1}{115}$ of its original nitrogen, but what would this same water (undivided from solid sewage) retain after treatment in the soil?

"2. *Mineral matters.*—The mineral matters held in solution in the water examined are of less importance than the organic bodies; it is nevertheless worthy of remark that 1 cubic metre of effluent water (in the whole sewage system) can furnish about 2 kilogrammes of potash and 100 grammes of phosphoric acid, whereas the effluent water of Paris only contains about 80 grammes at most of potash and 40 grammes of phosphoric acid.

"3. *Gas in solution.*—The presence of ammonia in a free state, or held in feeble combination by carbonic acid, is a matter of great importance; sewage water spread upon the land may, under certain conditions, give up this gas to the air, and 1 cubic metre of sewage may thus set free 736 litres of ammoniacal gas; moreover, volatile phosphoric compounds which are highly poisonous may be given off by this water, to say nothing of sulphuretted hydrogen and other nauseous and unwholesome emanations. In the chemical method these dangers cannot arise if proper precautions are adopted in the arrangement of the apparatus."

The authors then sum up their inquiry in the following results:—

"It thus appears to be clearly established—1. That the purification of sewage by chemical means is perfectly practicable. 2. That it can be applied continuously and without the production of unwholesome emanations. 3. That the employment for agricultural purposes of the nitrogen, potash, and phosphoric acid contained in the sewage can by this method be easily effected."

THE MEDICAL SCHOOL OF HELSINGFORS.

DR. PETERSEN gives in the *St. Petersburger Medicinische Wochenschrift* some interesting particulars about medical matters in the little University of Helsingfors, to which he has been paying a visit. Although in the Russian empire, the University of Helsingfors is apparently arranged in quite a different manner from other Russian universities, which all form parts of a system to which even Dorpat, where the language used is German, may be said to belong. At Helsingfors, though the language of the common people is Finnish, the lectures are all in Swedish; consequently, Helsingfors may be considered as belonging to the Scandinavian system of universities rather than to the Russian. Dr. Petersen turned his attention first to the Pathological Institute, a new building, well-arranged, and replete with all the necessary arrangements and apparatus for pathological research. He then went to the syphilitic and dermatological clinic, which is presided over by Dr. Smirnow, whose name has been prominently before the profession in connexion with the hypodermic method of administering the insoluble salts of mercury as calomel or the yellow oxide in syphilis. The clinic in which Smirnow's work is done is not a very satisfactory structure for the purpose, being more like a barrack than a hospital. It contains altogether fifty or sixty beds. It is, however, proposed to utilise a portion of the new surgical clinic which is now being erected for the syphilitic and dermatological department. Dr. Petersen explains that, notwithstanding Dr. Smirnow's scientific excellence, he has as yet only been given the charge of this clinic provisionally, and, in consequence of the opposition of some of the members of the faculty, it seems very doubtful whether he will be appointed professor. On going through the wards Dr. Petersen was much struck by the entire absence of cases of soft chancre, and was told that this form of disease was exceedingly rare in Helsingfors. When it does appear, it is always during the season when navigation is open; but in winter there is never any at all. The explanation of this may be partly due to the extreme cleanliness of the female Finlanders, and partly to the excellence of the police sanitary supervision. The frequency of soft chancre may be taken, according to Dr. Petersen, as a good index to the efficiency of the police control, and therefore he suggests that St. Petersburg, where soft chancre is the most common form of venereal disease met with in the hospitals, may well take a lesson from Finland.[1]

Skin diseases are not very common in Finland, and leprosy exceedingly rare; not more than one or two cases being seen during each year.

The surgical clinic, which is still in its old and inconvenient premises, is under the care of Prof. Saltzmann. The dressing chiefly used is moss, a very useful and, in Finland, economical material. The results obtained are excellent.

The new building, which is almost ready, was planned by the late Prof. Estlander, and will be roomy and well arranged. The pay system is, it appears, to be rather largely adopted, as out of 154 beds no less than ninety are for pay patients, the terms being graded in several classes. In order to ensure satisfactory nursing, which it seems is not easy to be obtained in Finland, "owing to the absence of sisters of charity," Prof. Saltzmann has sent the matron abroad (at the expense of the State) to be trained.

The operation material is considerable, as Helsingfors is the only university town in Finland, and so patients come from long distances. Epithelioma of the face is very common, though these cases are usually operated on by local surgeons, so that they do not come very largely to Helsingfors.

[1] According to the latest intelligence, as was mentioned in THE LANCET of July 28th, the Parliament of Finland has now made not only prostitution, but all illicit connexion criminal.

THE GALEN CLUB.—This Club (30, Sackville-street, W.) is now open for the reception of members, and the original list, which is limited to 400 names, is, we are informed, nearly completed. There is no entrance fee for original members, the annual subscription for town members being four guineas, and for those living in the country two guineas.

THE ANNUAL MEETING OF THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE annual meeting of the Medico-Psychological Association was held in Edinburgh, within the Hall of the Royal College of Physicians, on Monday, August 6th, under the presidency of Dr. T. S. CLOUSTON, of the Royal Edinburgh Asylum. There was a good attendance of members and other medical men. Amongst those present were Sir Arthur Mitchell, K.C.B.; the President of the Royal College of Physicians; Professor Benedikt, of Vienna; Dr. Stearns, U.S.A.; Drs. Affleck, Byrom Bramwell, McIvor Campbell, Campbell Clark, Rooke Ley, Miller, Mould, Needham, Conolly Norman, Rayner, Rogers, Rutherford, Savage, Sibbald, Hack Tuke, Turnbull, Urquhart, Watson, and Yellowlees.

The PRESIDENT having taken the chair, thanked the Association for the honour they had done him, and welcomed it to Edinburgh. The officers and Council for 1889 having been elected, the President being H. Hayes Newington, M.R.C.P.E., amongst other resolutions, one was carried agreeing to approach the General Medical Council in regard to the recognition and registration of the certificate of efficiency in psychological medicine, now given on examination by the Association. It was reported by Dr. HACK TUKE that forty-six candidates had received this certificate within the past two years in Great Britain and Ireland. The hope was strongly expressed that this certificate will come to be the accepted and recognised test that a medical man holding it is qualified for any lunacy appointment, and that in any future Lunacy Act he will be considered qualified for the performance of any medico-legal statutory duty.

At the afternoon meeting, Dr. CLOUSTON read an address on Secondary Dementia, from the clinical, hereditary, and evolutionary points of view. An animated discussion, invited by the President, followed, in which Drs. Hack Tuke, Savage, Yellowlees, Conolly Norman, Stearns, Ireland, Wiglesworth, Fletcher Beach, Rogers, Rayner, and Urquhart took part. The President's views were, in many respects, concurred in, but were also criticised and differed from. The proceedings were brought to a close by the President of the College of Physicians expressing, on behalf of the College, the pleasure it had given the College to see the Association within its walls, and by a vote of thanks to the President for his address, moved by Sir Arthur Mitchell, K.C.B., and seconded by Dr. Needham.

PROSECUTION UNDER THE DENTISTS ACT.

MR. HENRY FRANCIS PARTRIDGE, of 76, Sterndale-road, Shepherd's-bush, appeared to summonses before Mr. D'Eyncourt, charging him with using at his business address, 43, Sussex-place, Old Brompton-road, the name and title of dentist, and the letters L.D.S. (Licentiate of Dental Surgery), thereby implying that he was registered under the Dentists Act of 1878. Mr. R. E. Melcheimer was counsel for the prosecution, and Mr. G. Elliott for the defence. There was really no dispute as to the facts of the case. Mr. Partridge is the proprietor and originator of the South Kensington Ladies' Dental Association, and he held a diploma from the Royal College of Surgeons, Ireland, as Licentiate of Dental Surgery. He took to advertising, and the College of Surgeons, considering this unprofessional, cancelled his diploma, with the result that the General Medical Council of England withdrew his name from the Medical Register. Mr. Partridge applied for and obtained a *mandamus* against the Medical Council to compel them to restore his name to the Register, and this was decided in his favour. The Council appealed, but the decision of Mr. Justice Mathew was upheld. In giving judgment in the appeal case Lord Esher said that although he had decided in favour of Mr. Partridge, the medical authorities could deal with him for "disgraceful" conduct, the word "disgraceful" being of course understood in the sense of "unprofessional" dealings. The suggestion made was acted upon. Notices in regular form were given to Mr. Partridge, and last year he was removed

from the Register. Since that time he has made no alteration in his style of qualification and address. Mr. Elliott, on behalf of Mr. Partridge, said that there had only been a technical infringement of the Act, because the action of the Medical Council did not affect the defendant's capacity as a dentist. His skill remained with him, although his diploma had been taken away. Mr. D'Eyncourt fined Mr. Partridge £5 and three guineas costs.—*The Times.*

Public Health and Poor Law.

LOCAL GOVERNMENT DEPARTMENT.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Oldham Urban District.—Dr. Niven's annual report on the borough of Oldham deals very largely with the conditions which need amendment in the interests of public health. In the first place, it would appear that the Westholme Infectious Hospital is no longer of sufficient size to meet such emergencies as must necessarily be expected, and some new permanent accommodation is needed. House property in the district is insufficiently controlled during its construction. Thus, part of the surface soil is clay, and hence dryness of foundations becomes a matter of exceptional importance. And yet the requirement as to damp courses, which is a general one in most codes of bye-laws, is here a permissive one, depending on the requirements of the corporation or the surveyor for the time being—an arrangement which, in Oldham as elsewhere, leads to most unsatisfactory results. In other respects, and especially as to through ventilation, houses in this district are defective, and both typhus and tuberculous diseases are thus favoured. Considerable pains have been taken by Dr. Niven to ascertain the condition of the farms near Oldham whence the town milk supply is derived, and also that of the so-called dairies and other places where milk is stored in the borough. The result, apart from the knowledge which has been thus acquired, is unsatisfactory in the extreme. Absence of light, of proper ventilation, and of cleanliness were found but too frequently; and as regards crowding of cows in ill-ventilated places, the farmers excused themselves by stating that the animals would take cold if air were freely admitted. This is the same old story that used to be heard when it was suggested that tubercle and ill health must be met in our factories by providing the *employés* with air fit to be breathed. Milch cows largely suffer from tubercle, their milk is consumed by children inheriting a tuberculous tendency, and yet the condition under which cows are kept is as yet very generally ignored by those who are entrusted with the control of public health measures. In the present state of affairs, we entirely concur with Dr. Niven in urging that no milk should be consumed which has not been boiled or otherwise cooked. The general death-rate of the borough during 1887 was 23·8 per 1000, the so-called zymotic diseases going to swell the rate, and amounting themselves to 4·1 per 1000.

Eastbourne Urban District.—Excluding deaths amongst visitors, the death-rate for Eastbourne during 1887 was 11·4 per 1000. Some diphtheria occurred in the town, and it appears from Dr. Fussell's report that the Local Government Board, on being informed of it and of the conditions under which it occurred, made the very pertinent inquiry, "Why were the nuisances not removed previously to such outbreak?" As to this, the answer from Eastbourne is that "Our legal powers are weak or doubtful as to the abatement of some sanitary defects." The answer is vaguely worded; and we must admit that it has often occurred to us in reading reports on different sanitary districts, that obvious sources of danger, as to which there could be no doubt of the sufficiency of the existing powers, have apparently been allowed to remain untouched until the mischief which the sanitary law is intended to prevent has been allowed to take place. Eastbourne, we imagine, is not often open to the challenge it received; it has done an immense amount of work to secure a high standard of public health, and so far its efforts appear to have been very successful. But there are many sanitary districts in the kingdom to which such a question might well be addressed.

Ilkley Urban District.—There has been an exceptional increase in the death-rate of this district, but it has been largely due to maintained prevalence of whooping-cough, which, if fatal, soon tells on a small population of some 5500. The report does not refer much to the general sanitary circumstances prevailing, but Dr. Scott points to good work done in nuisance removal, in enforcing bye-laws, and in regard to supervision of slaughter-houses, dairies, &c. A hospital has long been a desideratum, and it had long been talked of; but, owing to the recent refusal of Bradford any longer to take outside cases of infectious diseases into their hospital, an iron one has been hurriedly erected for Ilkley. It remains to be seen how far it will be adapted to the current requirements of the district.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN twenty-eight of the largest English towns 4984 births and 3174 deaths were registered during the week ending August 11th. The annual rate of mortality in these towns, which had been 16·0 per 1000 in each of the preceding two weeks, rose last week to 17·6, and was higher than in any week since May last. During the first six weeks of the current quarter the death-rate in these towns averaged but 16·0 per 1000, and was 5·2 below the mean rate in the corresponding periods of the ten years 1878-87. The lowest rates in these towns last week were 9·2 in Derby, 11·4 in Huddersfield, 12·0 in Portsmouth, and 12·6 in Hull. The rates in the other towns ranged upwards to 19·9 in Leeds, 20·9 in Sheffield, 23·0 in Manchester, and 23·5 in Plymouth. The deaths referred to the principal zymotic diseases, which had been 311, 409, and 432 in the preceding three weeks, further rose last week to 477; they included 247 from diarrhœa, 74 from measles, 61 from whooping-cough, 35 from scarlet fever, 33 from diphtheria, 22 from "fever" (principally enteric), and only 5 from small-pox. No death from any of these zymotic diseases was registered during the week in Oldham or in Plymouth, whereas they caused the highest death-rates in Manchester, Liverpool, and Leeds. The greatest mortality from diarrhœa occurred in London, Preston, Norwich, Liverpool, and Leeds; from measles in Bradford; from whooping-cough in Manchester; from scarlet fever in Blackburn; and from "fever" in Nottingham and Sheffield. The 33 deaths from diphtheria included 25 in London and 3 in Nottingham. Small-pox caused 3 deaths in Manchester, 1 in Nottingham, and 1 in Preston, but not one in London or in any of the twenty-four other great towns. The Metropolitan Asylum Hospitals and the Highgate Small-pox Hospital contained only 2 small-pox patients at the end of the week. The number of scarlet fever patients in the Metropolitan Asylum Hospitals and in the London Fever Hospital was 821 at the end of the week, against numbers declining in the preceding five weeks from 924 to 828; 67 cases were admitted during the week, against 105, 87, and 73 in the three previous weeks. The deaths referred to diseases of the respiratory organs, which had been 160 and 167 in the preceding two weeks, further rose last week to 183, but were 4 below the corrected average. The causes of 68, or 2·1 per cent., of the deaths in the twenty-eight towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Sunderland, Portsmouth, Preston, and in five other smaller towns. The largest proportions of uncertified deaths were registered in Sheffield, Oldham, and Liverpool.

HEALTH OF SCOTCH TOWNS.

THE annual rate of mortality in the eight Scotch towns, which had been 15·3 and 15·6 per 1000 in the preceding two weeks, declined again to 15·9 in the week ending Aug. 11th; this rate was 2·0 below the mean rate during the same week in the twenty-eight large English towns. The rates in these Scotch towns ranged from 11·2 and 14·6 in Leith and Dundee, to 17·6 in Perth and 18·9 in Greenock. The 395 deaths in the eight towns showed a decline of 7 from the low number in the previous week, and included 18 which were referred to diarrhœa, 7 to diphtheria, 6 to measles, 5 to whooping-cough, 2 to scarlet fever, and not one to small-pox; in all, 44 deaths resulted from these principal zymotic diseases, against 41 and 38 in the pre-

ceding two weeks. These 44 deaths were equal to an annual rate of 1·7 per 1000, which was 0·9 below the mean rate from the same diseases in the twenty-eight English towns. The deaths attributed to diarrhœa, which had increased in the preceding four weeks from 8 to 22, declined again last week to 18, and were 19 below the number returned in the corresponding week of last year. The deaths referred to diphtheria, "fever," and measles showed an increase upon the numbers in the previous week, while the fatal cases of whooping-cough and scarlet fever scarcely differed from recent weekly numbers. The deaths referred to acute diseases of the respiratory organs in the eight towns, which had been 84, 46, and 55 in the preceding three weeks, declined again last week to 45, and were 17 below the number returned in the corresponding week of last year. The causes of 50, or nearly 13 per cent., of the deaths registered in the eight towns during the week were not certified.

HEALTH OF DUBLIN.

The rate of mortality in Dublin, which had been 18·0 and 21·1 per 1000 in the preceding two weeks, declined again to 19·4 in the week ending August 11th. During the first six weeks of the current quarter the death-rate in the city averaged 20·1 per 1000, the mean rate during the same period being 16·0 in London and 15·6 in Edinburgh. The 131 deaths in Dublin showed a decline of 12 from the number in the previous week; they included 4 which were referred to diarrhœa, 3 to scarlet fever, 3 to whooping-cough, 2 to "fever" (typhus, enteric, or ill-defined), and not one either to small-pox, measles, or diphtheria. Thus 12 deaths resulted from these principal zymotic diseases, against 8 and 21 in the preceding two weeks; these were equal to an annual rate of 1·8 per 1000, the rate from the same diseases being 3·2 in London and 0·8 in Edinburgh. The deaths from whooping-cough and "fever" showed a considerable decline from the numbers in the previous week, while those from diarrhœa were more numerous. The fatal cases of scarlet fever corresponded with the number in the previous week. Three deaths from violence and 2 inquest cases were registered; and 34, or more than a quarter, of the deaths occurred in public institutions. The causes of 16, or more than 12 per cent., of the deaths in the city were not certified.

THE SERVICES.

WAR OFFICE.—Army Medical Staff: The undermentioned Surgeons-Major are granted retired pay (dated Aug. 15th, 1888): Arthur Wellesley Roche and Thos. Kingston, M.D.; Surgeon Thomas Robert Lingard, M.B., has retired upon temporary half-pay (dated Aug. 3rd, 1888).

Surgeon-General Sir William James Moore, K.C.I.E., Bombay Retired List, to be Honorary Physician to the Queen, vice Inspector-General B. P. Rooke, M.D., Bombay Retired List, deceased (dated Aug. 15th, 1888).

Surgeon-General James Macnabb Cuningham, M.D., C.S.I., Bengal Retired List, to be Honorary Physician to the Queen, vice Inspector-General W. A. Green, Bombay Retired List, deceased (dated Aug. 15th, 1888).

ARMY MEDICAL RESERVE OF OFFICERS.—Surgeon Alex. Disney Leith Napier, M.D., to be Surgeon-Major, ranking as Major (dated Aug. 15th, 1888); Surgeon Peter Broome Giles, F.R.C.S., England, 1st Herefordshire Rifle Volunteer Corps, to be Surgeon-Major, ranking as Major (dated Aug. 15th, 1888).

INDIA OFFICE.—The Queen has approved of the retirement from the Service of the undermentioned Officers of the Indian Military Forces:—Deputy Surgeon-General John Henderson, M.D., of the Madras Medical Establishment (dated July 1st, 1888); Brigade Surgeon George Sackville Sutherland, M.D., of the Bengal Medical Establishment (dated June 26th, 1888); and Surgeon-Major Charles Fredk. Ogilvie, M.D., of the Bombay Medical Establishment (dated June 6th, 1888).

The Queen has approved of the resignation of the Service by the undermentioned Officer:—Surgeon William George McEvoy, of the Madras Medical Establishment (dated June 1st, 1888).

ADMIRALTY.—Surgeon Edward A. Spiller, to the *Albacore*, and Surgeon Reginald T. A. Levinge, to the *Tritton* (both dated Aug. 9th, 1888).

THE HONOURABLE ARTILLERY COMPANY OF LONDON.—Thomas Edwin Foster McGeagh, Gent., to be Surgeon, vice Rawlins, retired (dated Aug. 11th, 1888).

ARTILLERY VOLUNTEERS.—1st Cheshire and Carnarvonshire: Daniel Lovett Hubbard, Gent., to be Acting Surgeon (dated Aug. 11th, 1888).

RIFLE VOLUNTEERS.—5th Volunteer Battalion, Princess Louise's (Argyll and Sutherland Highlanders): John Ritchie, M.B., to be Acting Surgeon (dated Aug. 11th, 1888).

NORTHERN COUNTIES NOTES.

(From our own Correspondent.)

NEWCASTLE-ON-TYNE.

IN my note of July 25th in reference to the sanitary condition of the Jesmond district of Newcastle-on-Tyne brought into prominence by an extensive outbreak of scarlet fever, I mentioned, from facts known to myself and from the newspaper correspondence, that the condition of the main drains was not above suspicion. This remark gave rise to a spirited correspondence in our local papers, and the assertion made in my letter was at times denied and again supported. It has now received a full corroboration from the city engineer; at least the *Newcastle Chronicle* states that "no pains have been spared by the city engineer to discover whether there is any defect in the drainage of Jesmond. In the course of an examination it has been found that a large drain, or rather part of a main sewer, which has been in use for the last fourteen or fifteen years, is damaged in several places." In order to have a perfect drain an application will in all probability be made at the next meeting of the City Council for power to put in a new drain, and there is no doubt that the Council will accede to the request, knowing that a defect in a large drain of this nature may do more damage to the health and lives of our citizens than an explosion or a great fire. It is satisfactory to think that the notes in THE LANCET and the correspondence in the daily papers have so far proved effectual.

THE PNEUMONIA OUTBREAK AT MIDDLESBROUGH.

At the last meeting of the Middlesbrough Board of Guardians the subject of the late epidemic of pneumonia was under consideration. Dr. Malcolmson, the medical officer of health, recommended the immediate testing of the workhouse drains. It appears that Dr. Ballard, who is conducting the Government investigation, has already come to the conclusion that the disease was communicable. In the workhouse they had forty-three pneumonia patients. They were inmates, not in the sick wards, but in the general wards, where the surroundings were supposed to be healthy. Of these forty-three patients, seventeen had died. As well as the forty-three cases which arose at the workhouse, fifty-eight went in from outside. Dr. Malcolmson stated as to the cause that the most acceptable theory was a chill, and that people working in hot places were more liable than others; but this would not apply to the workhouse, where the conditions were entirely different, where there was no hard work, and where they did not get too much drink. Dr. Ballard is still on the spot pursuing his inquiries.

HOSPITAL DEMONSTRATIONS IN THE NORTH.

Last week has been marked by the number and popularity of the demonstrations in behalf of many of our northern hospitals. The connexion between the friendly societies and the hospital system—as a speaker remarked at the demonstration in favour of the North Riding Infirmary and the Cottage Hospital at Middlesbrough—is most desirable, and is evidently increasing, and depends, in my opinion, in giving all classes, and largely the working classes, a direct share in the working of these institutions. At Stockton, Mr. Mark Whitwell, at the demonstration in behalf of the Stockton Surgical Hospital, referred to the Bristol Children's Hospital (of which he is the founder), stating that it was established in 1866, and occupied a building which cost £20,000, of which only £500 is unpaid. Last year 300 in-patients and 4000 out-patients were treated.

The collection for the Stockton Hospital was nearly double that of last year. At Northallerton there has also been a hospital demonstration and sale of work, the amount realised being greatly in excess of last year. Ripon seems to have exceeded all, for it is stated that the committee of the fancy fair which was held last week will be able to hand over to the Ripon Cottage Hospital £1500 after paying all expenses.

FATAL POISONING OF TWO BOYS BY HEMLOCK.

A sad case of poisoning by hemlock took place at Consett, county of Durham, last week, by which two brothers, aged respectively five and eleven, lost their lives. The boys on Sunday, in their play, got the stem of a hemlock plant to shoot haws through. The next day they were violently seized with the usual symptoms of hemlock poisoning, and both died in a few hours, notwithstanding prompt attendance from Dr. George Renton and Dr. Frazer, whose evidence was very clear—namely, that the plant was very active in July and August, and that they would in holding the stem for some time in their mouths absorb the juice. The stem, too, was broken off, not cut, and this would facilitate the flow of the juice.

Newcastle-on-Tyne, Aug. 15th.

DUBLIN.

(From our own Correspondent.)

IRISH LUNATIC ASYLUMS.

FROM the thirty-seventh annual report recently issued, it appears that at the close of last year the insane in Ireland had increased by 561 as compared with the preceding year. This increase occurred among the lunatics in public asylums, poorhouses, and in private institutions, and is considerably more than in any previous like period. The admissions into district asylums for the year numbered 2863, which, with those previously admitted, make a total of 12,940 under treatment, of whom no less than 620 were relapsed cases, some for a fourth and fifth time, and not a few at regular intervals—facts indicative of the recurrence of mental disease. Of these 12,940 inmates, 1582 were discharged, of whom 1123 had recovered, 375 were relieved, and in 84 instances no improvement had taken place. The mortality amounted to 857, or a death-rate of not quite 7 per cent. on the total treated. With respect to the curative and beneficial results of treatment during last year, the former, if compared with admissions alone, would show a return close on 40 per cent.; but on the average under treatment, the cures would stand at about 11 per cent., and the improved at nearly 4 per cent. As regards the relative proportion of the probably curable to the incurable, they stand in the ratio of 1880 of the former to 8619 of the latter, in which are included, to the number of 827, epileptics, lunatics, and idiots. The average capitation cost on the daily average of inmates amounted to £21 3*s.* 6*d.*

IRISH PHARMACY ACT (1875) AMENDMENT BILL.

The Dublin Branch of the Chemists and Druggists' Association of Ireland, at a recent meeting, adopted the following resolutions in reference to this Bill, now before Parliament:—"Resolution 1: That having read and fully discussed the proposed Irish Pharmacy Act (1875) Amendment Bill now before Parliament, and while recognising the necessity of providing a proper register of qualified pharmaceutical chemists and chemists and druggists, we consider the Bill deals most unfairly with the rights of chemists and druggists, and we hereby empower our committee to take whatsoever steps they may think necessary to oppose the Bill, unless such concessions can be obtained from the promoters as will satisfy our just demands. Resolution 2: That having regard to the undoubted intention of the principal Act to establish permanently two grades of persons entitled to retail poisons, and having regard to the requirements of the country and the interests of the public, we consider the Bill should provide for the continuance of the two qualified classes—(*a*) 'Pharmaceutical chemists' entitled to dispense prescriptions; (*b*) 'Chemists and druggists' entitled to retail poisons, but not to dispense prescriptions. Further, that every reasonable facility should be given to persons holding the minor qualification becoming candidates for the major, and that an apprenticeship of four years under either should entitle a candidate to present himself for the final examination of pharmaceutical chemist. Resolution 3: That we express our unqualified condemnation of the degrading and insulting Clause No. 13, introduced by the Select Committee of the House of Lords into the Bill, as being quite uncalled for and absolutely without precedent. Resolution 4: That copies of the foregoing resolutions be forwarded immediately to the members of Her Majesty's Government, members of Parliament, and members of the Council of the Pharmaceutical Society of Ireland." Mr. S. P. Boyd was deputed to proceed to London to cooperate with the deputation now in London from the Northern Association.

QUEEN'S COLLEGE, GALWAY.

The President in his annual report states that the progress of this institution was arrested in the session 1882-83, and the College has not since regained the position it previously occupied. This interruption occurred from the dissolution of the Queen's University in Ireland, and also from the pecuniary pressure on that class of the community from which the College chiefly derives its support—arising from the general depression in trade and agriculture. He adds that the system of education which proved so effective in the past will be maintained with unabated vigour in the time to come; and he does not relinquish the hope that the College, participating in the general improvement of the country, will yet resume its former career of progress and public usefulness. Great additions have been recently made to the museums in connexion with the departments of Physics, Natural History, and Physiology, which may now be said to be in a perfect state of efficiency for teaching purposes.

Dublin, August 14th.

PARIS.

(From our own Correspondent.)

THE CONGRESS ON TUBERCULOSIS.

(Concluded from page 292.)

ON Sunday, July 29th, there was no meeting, but the members of the Congress visited the Veterinary School at Alfort, where sick animals were exhibited, and they had an opportunity of examining the corpses of tuberculous animals.—On Monday the question discussed was: "The media of the introduction and the propagation of the Tuberculous Virus in the Economy; prophylactic measures." M. Torkomian of Scutari pricked his finger in performing the necropsy of a subject who died from generalised tuberculosis in 1882. Three days afterwards he noticed with some anxiety the production of an anatomical tubercle, and was afraid that he would undergo the same fate as Laennec. In a few weeks, however, the glandular swelling, which had promptly manifested itself, disappeared, as also the anatomical tubercle itself, and ever since M. Torkomian has always enjoyed, and still enjoys, excellent health. Hence it is concluded that superficial inoculation of tuberculosis in man is not necessarily followed by generalisation. MM. Verneuil and Chauveau were also affected with an anatomical tubercle, and the disease in them also remained local. They remarked that this is often the case; the superficial inoculations are not favourable to the evolution of the bacillus of Koch, and if the soil is resistant one observes only an insignificant local lesion. Moreover, as observed by MM. Villemin and Barthélemy, the anatomical tubercle is not always a manifestation of tuberculosis; it may be developed around other organisms than the bacillus of Koch. Professor Jeannel of Toulouse had performed numerous experiments on the rabbit, to study the generalisation of tuberculosis. The extirpation on the fourth day of the glands above the point inoculated did not prevent the success of the inoculation, which is a proof that the bacilli had not been arrested in the lymphatic system. Moreover, the blood of a rabbit inoculated by subcutaneous grafting behaves like a virulent dilution from the second day, perhaps earlier. Injected *en masse* in the peritoneum, this blood determines an experimental tuberculosis. Hence M. Jeannel does not believe in local tuberculosis; for him the malady is generalised in all the organism before manifesting its existence by visceral localisations. Professor Straus placed during from one hour to forty-eight hours spodulated cultures of the bacillus of

Koch in contact with the pure gastric juice of a dog. After six hours the bacilli had lost none of their virulent action. After twenty-four hours this action was destroyed. It may thence be seen that the tubercle bacilli are not rendered inoffensive by their sojourn in the stomach. Nevertheless, the gallinaceæ appear to be rarely infected with tuberculosis through the intestinal canal. M. Straus had given daily to fowls during several months, enormous quantities of the sputa of phthisical subjects. In none of the fowls was there any trace of tuberculosis, not even in those which in one year had swallowed as much as fifty kilogrammes of tuberculous sputa. M. Landouzy studied the tuberculosis of infants. He showed with what facility infants are infected; but in them the malady assumes the character of an acute infection; the child succumbs to the tuberculous infection before the localisation is able to manifest itself, but the nature of the infection is demonstrated by the presence of the bacillus. This cause of death is frequent. Of three children which succumb, one is tuberculous. This must be made known. It must also be known that defective alimentation, the milk of tuberculous cows, is the great cause of infantile tuberculosis; but what should also be known is that the infection may be hereditary, and that heredity purely paternal is common. M. Landouzy thinks that these grave considerations should be maturely weighed before contemplating the founding of a family, but which are unfortunately too often overbalanced by other interested motives. And yet to secure a robust race the prophylaxis of syphilis, of alcoholism, and of tuberculosis must be rigidly enforced. M. Legroux showed the ill effects of bringing up children with the bottle. He proposed that the Congress should intervene on behalf of ignorant populations; that all mothers should be instructed as to the dangers that they subject their infants to in giving them cows' milk unboiled. The only milk of which one can be pretty sure is that of the goat or ass.

On Tuesday, July 31st, communications were made on the following subjects: The Early Diagnosis of Tuberculosis in Man; the Early Diagnosis of Tuberculosis in Animals. M. Espina y Capo, of Madrid, read the summary of a work on the signs which permit of an early diagnosis of tuberculosis in man. He attributes great importance to the measurements of the chest. When the intermammary space does not exceed 17 or 18 centimetres, when the axillary index does not exceed 72 centimetres, there are great chances that one has not to do with a case of pulmonary tuberculosis. M. Arloing was struck with the fact that the inoculations of scrofulous glands did not always produce the same result. He inoculated a rabbit with the scrapings of the strumous abscess of a young girl. The rabbit lived eight months, and was not affected with tuberculosis, and the girl got well. He inoculated another rabbit with the débris of a scrofulous gland removed from a young girl. The rabbit at the end of two months was affected with tuberculosis, and the patient died with generalised "granulie." M. Arloing asked whether scrofula is always of a tuberculous nature, or whether it is capable of being classified as simple and as tuberculous. He simply put the question, and contented himself with demonstrating that scrofula is very variable in its evolution, and that the inoculation of animals may furnish, in certain cases, valuable elements of prognosis, according to the manner in which it acts on the two animal reagents—the guinea-pig and the rabbit. All tuberculous inoculations succeed in the guinea-pig. But in the rabbit only the inoculation which is highly virulent succeeds; the success of an inoculation in rabbits would therefore indicate the great virulence of the inoculation, and one can deduce from it the gravity of the infection, and the probability of a promptly fatal issue. On the contrary, the success of an inoculation in the guinea-pig and its non-success in the rabbit would permit one to infer an attenuated tuberculosis of slow evolution or even susceptible of being checked. M. Verneuil treated the question of experimental inoculations from a surgical point of view. He showed the importance to the surgeon of knowing with certainty the specific nature or not of the lesion which demands his intervention. He asked how this condition is to be ascertained. There are two procedures, the one, twenty years old, due to Villemin, the French procedure, the procedure of experimental inoculation; the other, more recent, the procedure of the microscopic examination of the specific bacteria, the procedure of Koch, the German procedure. Certainly it is good to be able to recognise in the field of the microscope the bacillus of Koch, and to affirm the tuberculous nature of the lesion by examination of a diseased product, but whether this is a practical means is another question. The country practitioner, even if he had the instrument at his disposal, would probably not be sufficiently instructed in bacteriology to avail himself of it. Could he devote to his researches sufficient time? In fine, what conclusion could he, like the first bacteriologists, draw from a negative observation? For it must not be forgotten that the absence of the bacillus proves nothing; its presence alone has an undeniable significance. On the contrary, inoculation is easy to practise; it is inexpensive, it takes but little time; and its signification is otherwise precise. Every guinea-pig inoculated with the contents of a simple tube of Pasteur in the peritoneum presents at the end of twelve or fifteen days manifest lesions if the inoculation had been practised with tuberculous matter, and it never presents granulations in the spleen or peritoneum if substances of another nature be inoculated. Thus the researches of the laboratory complete the clinical examination, and M. Verneuil does not doubt that medical men will soon know how to employ the living reagent, so simple and so powerful, which he indicates. The communication of M. Landouzy, even to-day, offers a particular interest. He studied the morbid proclivity, innate and acquired, for tuberculosis. It has long been known that fair or reddish persons have a singular predisposition to phthisis. M. Landouzy has verified the exactitude of this unfortunate predisposition of the Venetian type, as he terms it. A tendency to tuberculosis M. Landouzy has also discovered in persons marked by the small-pox. Of three hundred persons in this condition, examined at the hospital, eleven only were exempt from tuberculosis. Hence M. Landouzy insists on the necessity of making vaccination compulsory, as variolous subjects are not only likely to spread small-pox, but later on they may disseminate tuberculosis.

The Congress had received many other very interesting communications, of which it is impossible to give even a brief summary here. Towards the end of the meeting the following propositions were noted: 1. All meat of tuberculous animals should be seized. 2. Instructions should be given to all consumers explaining the dangers of contagion, the precautions to be taken against contagious maladies, against suspicious aliments, &c. 3. A rigorous inspection of dairies should be instituted.

In closing the meeting of the Congress, M. Chauveau, the President, spoke of the great success and the practical utility already manifest from the proceedings of these meetings. He recalled the recent researches which led the present *savants* to consider tuberculosis as an infectious malady. Foreseen by the illustrious Morgagni, and afterwards suspected by Andral and Laennec, the infectious nature of tuberculosis is now no longer disputable since the work of Villemin, of Koch, and others, to which may be added the testimony of those who had made communications to the present Congress. M. Chauveau did not forget to recall the work of the School of Lyons, the researches of which have placed the identity of human tuberculosis and bovine tuberculosis beyond a doubt, and the transmissibility of a similar malady from one species to another is fertile in practical consequences. It is for this reason that medical men and veterinarians have met together, in order to discover what measures should be adopted to preserve the people from this terrible plague, and he hoped that the work of the present Congress which is now closed had contributed in some measure to throw light on the subject of tuberculosis. He then announced that the next Congress will be held two years hence. It will be presided over by Professor Villemin, who was unanimously elected to the office.

DEATH OF DR. ÉMILE DECAISNE.

Dr. Émile Decaisne died on Aug. 5th, in the sixty-second year of his age. Dr. Decaisne was well known as a writer, and he was the author of a Dictionary of Medicine, in the compilation of which he was assisted by Dr. Gorecki.

Paris, Aug. 14th.

THE INTERNATIONAL CONGRESS OF HYDROLOGY AND CLIMATOLOGY is to hold its second triennial session in Paris next year, at the beginning of October, in connexion with the exhibition there. The president of the committee is M. E. Renou, vice-president of the French Meteorological Society.

INDIA.

(From a Correspondent.)

HOSPITAL ACCOMMODATION FOR INFECTIOUS DISEASES IN BOMBAY.

THE Corporation of Bombay has been considering recently a proposal to establish hospital accommodation for infectious diseases in a certain district. That in Bombay, as in other large Indian cities, there is a felt want for separate hospitals for cholera and small-pox, there can be no doubt. Cholera may be said to be perennial, and so also is small-pox. The sanitary condition of the native town is deplorable, and is favourable in almost every respect for the propagation of both these diseases. If there were separate hospitals established and maintained under proper management and control, it would decidedly be a step in the right direction—so far, at least, as prevention is concerned; and there is no doubt that a certain percentage of those who now die would recover under proper treatment. In this connexion Indian municipalities would do well to provide that in the case of small-pox the infirmary itself be not rendered the *fons et origo mali* by its gates being left ajar for free ingress and egress. Side by side with hospitals for infectious diseases some attempt at compulsory notification of these should be initiated. The measure would need to be introduced gradually and with discretion. It is to be hoped that this important subject will receive from Indian municipalities their earnest attention and countenance.

THE COUNTESS OF DUFFERIN'S FUND.

It would appear from two interesting papers issued by the honorary secretary that, without in any way interfering with the independence and freedom of action of the National Association for Supplying Female Medical Aid to the Women of India, that body has secured the assistance of the Supreme Government in two important matters, which doubtless would go a long way to elevate its *locus standi*—(1) the Surgeon-General will advise the Association (gratis of course) as to the selection of its *employés;* (2) the work done for the Association in dispensaries, hospitals, and schools will be supervised by medical officials. The Government, however, desire it to be distinctly understood that its *employés* are in no way to be recognised as Government servants.

SURGEON-MAJOR JOHN PRENDERGAST, MEDICAL STAFF.

I beg to call the attention of the profession to the very painful case of the Misses Prendergast, sisters of the late Surgeon-Major Prendergast, who was recently drowned at Kiskee in India. Mr. Prendergast, it will be remembered, was severely wounded in the battle of Tamai whilst continuing to attend a wounded soldier after (to use a military expression) "the square had been broken up." He was the sole support of his two young sisters, to whom he used to send half of his pay from India, who now mourn their loss and are left penniless and in a most pitiable condition. The case is worthy of kindly support, and I sincerely trust readers of THE LANCET will stretch out a helping hand to the two young ladies thus left destitute. In India a subscription has been started at the instance of Surgeon-General Thompson of Bombay, who, I dare say, will be pleased to receive subscriptions from those of your readers who are in this country. The under-mentioned medical gentlemen in Dublin have consented to receive and dispose of subscriptions: C. G. Kilkelly, Esq., J.P., 12, Upper Fitzwilliam-street; R. F. Tobin, Esq., 59, Stephen's-green; F. G. Adye Curran, Esq., Lissom-field; and G. M. Dobson, Esq., Portobello.

THE CHOLERA.

This disease has very nearly abated in Cashmere, but it prevails still in many parts of the country, though not to any great extent.

THE SANITATION OF CALCUTTA.

Lord Dufferin has recently paid a visit to some of the insanitary native parts of Calcutta. There his lordship must have witnessed dirt and filth in the most noxious forms that a dense population can produce, saturating the ground and contaminating the air. There are groups of huts crowded with people, with open drains and ditches filled with seething, bubbling, and noisome corruption. In close proximity there will be found a tank (one such in which Professor Koch found his comma bacilli) in the water of which the people bathe, wash their clothes and their culinary and other utensils, and carry away the same water for drinking and cooking purposes. Such are the conditions that have been described by Dr. Simpson, the medical officer of health, but they are not dealt with. Prompt measures are needed to cope with such serious evils. The question is, who is to take the initiative? The Calcutta municipality, like the rest of the fraternity, is apathetic, and, instead of setting to work, are eager to take up the cudgels against the health officer, whose zeal and ability are the two very points they so dislike. Side by side with veritable facts, it is amusing to find Sir George Campbell telling the House of Commons that Calcutta and its suburbs are in nowise in need of sanitary reform.

THE PARSEE LYING-IN ASYLUM.

About a year since, this institution was established in Bombay, by voluntary subscription, to meet a much-felt want; and a meeting took place the other day to witness the progress it had made during the period. It would appear that among the Parsees there were 1200 children born during the year, of which number 120 were born here. Mr. Temuljee Nariman is the honorary secretary and physician; and to him, the committee consider, is due the credit for the success of the institution. At first there was accommodation for only six at a time, but, as the demand for admission increased, provision had to be made for ten. Up to date, 99 females had taken advantage of the institution, and 188 more had been registered, but owing to the limited accommodation 580 had to be refused admission. The total funds of the asylum amounted to 28,769 rupees, which included 2861 rupees collected as fees from patients. The total expenditure was 12,489 rupees, leaving a balance of 6280 rupees in hand. Mr. Temuljee is in favour of there being two such asylums: one for the poorer classes, to be maintained by public charity; and the other for the better classes, which should be rendered self-supporting. The colleagues associated with Mr. Temuljee are Messrs. Cowasjee Pestonjee, Jehangheer Cursetjee, and Dinshaw Master (who give their professional services gratuitously, and also supply medicines free of charge), and Mr. D. N. Parakh, the consulting physician. It is to be hoped that this example of the Parsees will be followed by other communities in Bombay.

NEW FACTORY ACT.

There are many deficiencies in the present Factory Act, which is worked in a very loose way. Children of the age of seven are worked nine hours a day. At present children of eight and nine, palmed off as adults, are employed in adult work. The remedy for this is to insist that children's work be limited to half the day. But then astute mill agents will evade the law by working children in one mill for half a day and in another the other half.

THE EXTRA PENSION OF THE INDIAN MEDICAL SERVICE.

The Government of India have ruled, under date of May 25th, 1888, that in future the application of a medical officer for the extra pension of £100 per annum must be accompanied by an official application to retire from the service within the year, in order that both the applications may be considered at the same time.

SHOCKING FATALITY ON BOARD A CLAN STEAMER.

On June 16th, while the steam-ship *Clan Mackintosh* was on her way to Madras, a series of deaths, due to asphyxia caused by the poisonous emanations from a portion of the hold of the steamer in which stores are kept, occurred almost simultaneously. The chief steward on that date, it appears, accompanied by two others, entered the store-room for the purpose of issuing the week's rations to the native crew, and another man was left on the second deck to receive the stores as they were handed up. The first three had hardly reached the store-room before they were suffocated by the poisonous vapours, and the man who was left above was also overcome and fell into the hold. Seeing this man fall, a fireman who was close by at the time reported the matter to the second officer, who proceeded with a lighted lamp to investigate. He also had barely reached the bottom of the hold when the lamp was extinguished, and he himself fell down. The first officer then went down, after having slings arranged above. He found the body of the second officer, and had it hoisted

on deck, himself following shortly after. It appears he went down into the hold a second time to recover the body of the chief steward, but in this noble endeavour he was overcome, and fell beside the other four victims. The second officer, the third engineer, and two quartermasters, besides several of the native crew, were with difficulty resuscitated by the exertions of the surgeon and others.

Bombay, July 17th.

Medical News.

UNIVERSITY OF LONDON.—The following have passed the Intermediate Examination in Medicine held in July :—

Entire Examination.

First Division.—Ellen M. Tinné Berthon, London School of Medicine for Women; John Henry Bryant, Guy's Hospital; Archie Tillyer Collum, Charing-cross Hospital; Douglas Drew, University College; Bertram Whewell Hogarth, Guy's Hospital; Yarnold Hubert Mills, London Hospital; Richard Walter Richards, St. Bartholomew's Hospital; Sidney Herbert Snell, University College; Wm. Howard Sturge, London Hospital; Herbert Tilley, University College; Lewis Williams, University College.

Second Division.—Harold Wm. Colmer Austen, St. Bartholomew's Hospital; Frank George Bushnell, University College; John Norton Collins, London Hospital; James Dickinson, Westminster Hospital; Emily Louisa Dove, London School of Medicine for Women; Herbert Annesley Eccles, St. Bartholomew's Hospital; John Grimshaw, London Hospital; William Jn. Hancock, B.Sc., Owens College; Harold Hodgson, Guy's Hospital; Wm. Willoughby Kennedy, St. Bartholomew's Hospital; Ronald Edward S. Krohn, University College; William Britain Morton, University College; Chas. Carter Moxon, St. Thomas's Hospital; John Ernest Paul, University College; William Penberthy, London Hospital; Arthur Edward Price, St. Thomas's Hospital; Eric Law Pritchard, King's College; Richard Henry Read, Owens College; Frank Allan Roberts, Yorkshire College; Leonard George Scudamore, St. Thomas's Hospital; Abraham Thomas, Guy's Hospital; Ethel Newton Tribe, London School of Medicine for Women; Walter Twyford, Owens College; H. Woolmington Webber, Guy's Hospital; A. Stanley Wohlmann, Guy's Hospital; Thos. Jason Wood, University College; John Young, Guy's Hospital.

The following Honours candidates have been recommended for a pass :—

John Alfred Codd, B.Sc., Yorkshire College; Richard Hamilton, Owens College; Frederick Johnson, St. Bartholomew's Hospital; William James Potts, Owens College.

Excluding Physiology.

First Division.—William Barker Bale, Owens College; Reginald Spencer Pearson, Owens College; Mildred E. K. Staley, London School of Medicine for Women; Seymour Graves Toller, St. Thomas's Hospital.

Second Division.—Edward Mansfield Brockbank, Owens College; Theodore Henry Ionides, University College; Charles Ewbank Lansdown, St. Mary's Hospital; Elizabeth Margaret Pace, London School of Medicine for Women; John Gratton Wilson, London Hospital; James Yeomans, University College.

Physiology only.

Second Division.—James R. Andrew Clark, University College; William Adams Clark, St. Bartholomew's Hospital; Harold Andrew Kidd, St. Mary's Hospital; Harry Lambert Lack, King's College; Edward Roberts, Guy's Hospital; John Alfred Waring, University College.

The following candidates have passed the Intermediate Examination for Honours in the subjects indicated :—

Anatomy.

First Class.—George F. Blacker (Exhibition and Gold Medal), University College; Herbert Horrocks, B.Sc. (Gold Medal), Owens College; *Florence G. Longbottom, London School of Medicine for Women.

Second Class.—Joseph J. Whitaker, B.A., University College; Mary Darby Sturge, London School of Medicine for Women.

Third Class.—Annette Matilda Benson, London School of Medicine and Mason College.

Physiology and Histology.

Second Class.—Annette Matilda Benson, London School of Medicine for Women; Augustine Griffith, University College; George Francis Blacker, University College.

Third Class.—Alice McLaren, Minnie L. C. Madgshon, and Ethel Mary N. Williams, all of the London School of Medicine for Women.

Organic Chemistry.

First Class.—Sasi B. Mitra (Exhibition and Gold Medal), University College; Thomas Grigor Brodie, King's College.

Materia Medica and Pharmaceutical Chemistry.

First Class.—Geo. F. Blacker (Exhibition and Gold Medal), University College; Annette Matilda Benson, London School of Medicine for Women; William McAdam Eccles, St. Bartholomew's Hospital.

Second Class.—Ellen Margaret Farrer, London School of Medicine for Women.

Third Class.—Augustine Griffith, University College; Alice McLaren, London School of Medicine for Women; William Griffiths, B.Sc., Melbourne University and Middlesex Hospital.

* Obtained the number of marks qualifying for a Gold Medal.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF EDINBURGH AND FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the July sittings of the Examiners of the Conjoint Board the following candidates passed the Final Examination :—

W. H. Large, Llandudno; Patrick O'Callaghan, Carndonagh, county Donegal; C. Lucius Strangman, Carriganore, co. Waterford; Thomas Burns, Edinburgh; C. B. Humphreys, Glasgow; E. D. Duffett, Glasgow; A. E. Huband, Tamworth; C. H. Jackman, London; W. Vaughan Griffith, Tremadoc, North Wales; C. B. Richards, London; Joseph Buck, Whitby; J. Hunter, Ayr; J. Westwood, Edgbaston, Birmingham; Sarah Gray, London; J. M'Cartney, Partick; James W. Chapman, Belfast; Bertram B. Hoggan, Brighton; Cuthbert S. Morrison, Edinburgh; Jonathan Steele, Cumberland; Montague S. W. Gunning, Partick; Patrick Rowan, Dublin; John Caldwell Thomas, M.D., Whiteabby, co. Antrim; H. Stedman, Towcester.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—At meetings of the Court of Examiners held on the 7th inst. and following day the undernamed obtained the Fellowship of the College :—

Battersby, John, Army Medical Staff.
Mosse, Charles G. Drummond, Army Medical Staff.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—In the list of names published in our last issue of those admitted Members, for "Smith, Henry Lyon, Chester-le-Street," read Smith, Harry Lyon, L.R.C.P.Edin., Chester-le-Street.

PRINCE ALBERT VICTOR has consented to act as President of the Great Northern Central Hospital, the new buildings of which were lately opened by their Royal Highnesses the Prince and Princess of Wales.

VACCINATION GRANT.—Mr. J. H. Hughes, public vaccinator of the Ombersley district of the Droitwich Union, has received the Government grant for efficient vaccination in his district (seventh time).

SUPERANNUATION.—Dr. John Woodhouse, late medical officer for the first district and the workhouse of the Hertford Union, has received a superannuation allowance of £80 per year.

PROVINCIAL HOSPITAL SUNDAY AND SATURDAY COLLECTIONS.—The third annual Holbeck, New Wortley, and District Infirmary Festival in aid of the Leeds Infirmary, held on Sunday last, produced £50 10s. The first Hospital Sunday collection at Hertford, which took place on the 5th inst., on behalf of the Hertford Infirmary and the Herts Convalescent Home, realised £138 3s. 3*d*.

A SCOTTISH CREMATION SOCIETY.—Last week a meeting was held in Glasgow by those favourable to the formation of a Scottish Burial Reform and Cremation Society. Dr. Cameron, M.P., occupied the chair. Resolutions were passed disapproving of the existing methods of burial in Scotland, and expressing a desire for the substitution of less expensive and more sanitary methods of disposing of the dead, approving in particular of cremation. A society was subsequently formed, under the title of the Scottish Burial Reform and Cremation Society, to effect the objects in view.

OPHTHALMIC PRACTICE IN A RUSSIAN RURAL HOSPITAL.—According to a report issued by Dr. Tepliashin, the medical officer of the Glasoff rural hospital, the number of eye cases treated between November, 1885, to the end of 1887, was 4289. Of these 54 per cent. suffered from affections of the cornea, 39 per cent. from conjunctival affections, 32 from diseases of the lids, 2·3 per cent. had glaucoma, and 2·7 per cent. disease of the lens. Altogether 1542 operations were performed, 1242 of which were for entropion and trichiasis, Paquelin's thermo-cautery and Gaillard's suture being the treatment usually adopted. Extraction of cataract was performed 76 times, and iridectomy 176 times.

CARMICHAEL COLLEGE OF MEDICINE.—The following schalsrships and prizes have been awarded for the Session 1887-88 :—Carmichael Scholarship: J. Fullerton. Mayne Scholarship: G. Penrose. Prizes: Anatomy, first year, V. Cooke, J. Boon, A. Arthur; second year, J. Thompson. Materia Medica: J. Wilkin, E. Keeble. Botany and Zoology: C. Crawford. Chemistry: G. Farmer, W. Russell, H. Bentley. Physiology: J. Thompson. Histology: E. Du Cane. Surgery: G. Joyce. Operative Surgery: R. Mawhinney (gold medal), Marie Rockstro (silver medal). Practice of Medicine: E. Du Cane. Practical Chemistry: E. Du Cane. Medical Jurisprudence: Marie Rockstro (silver medal), J. Falkiner. Midwifery: R. Mawhinney.

FOREWARNED.—At the last meeting of the Chester Board of Guardians, a letter was read from the secretary to the Chester Infirmary respecting the small-pox patients admitted to that institution from the union. The Infirmary Board, while willing to receive small-pox patients as heretofore, when able to do so, drew the attention of the guardians to the possible event of the infirmary hospital being full, and their consequent responsibility to make provision for these cases in anticipation of such a contingency.

WOOLSORTERS' DISEASE.—At the Bradford Town Council meeting on Tuesday attention was directed to the greater stringency of the Bradford regulations for the prevention of this disease, in reference to the manipulation of certain kinds of wool, the enforcing of which, it was alleged, would tend to cause persons engaged in that branch of trade to go outside the borough. It was suggested, to obviate such a disadvantage, that steps ought to be taken to obtain regulations applicable to the country generally. The Town Clerk hereupon stated that he had been in communication with the Local Government Board and had asked for a deputation to be received on the subject, and was waiting a reply.

BRADFORD FEVER HOSPITAL INVESTMENT FUND.—The trustees of this fund, last week, resolved that the consideration of the committee's report with respect to investments, which showed the total amount invested to be about £20,000, should be adjourned. It is proposed shortly to convene a meeting to consider the distribution among the charities of the town of £10,000 of the money invested. Of the remaining £10,000 it has been decided to give £4000 to the North Bierley Union towards erecting a new hospital, leaving £6000 still to be disposed of as the trustees may deem advisable. A sum of £500 left by the late Mr. Chas. Semon in aid of the hospital, it has been arranged to give to the committee of Semon's Convalescent Home, Ilkley, for the purposes of that institution.

MEDICAL NOTES IN PARLIAMENT.

Private Lunatic Asylums.

IN the House of Commons, on the 9th inst., in answer to Mr. W. Corbet, Mr. Matthews stated that he was informed by the Lunacy Commissioners that they have no knowledge of the actions for libel brought by Dr. Eastwood beyond that contained in the newspapers. As far as the Commissioners were aware the allegations were unfounded, and, having regard to the result of the litigation, they did not consider any inquiry on their part to be necessary. It would be observed that no attempt had been made to justify the libel. The Government hoped to be able to reintroduce the Lunacy Bill next session, but could not undertake to insert such a clause as was suggested.

The Sweating System.

On the 13th inst., Mr. Cremer asked the Secretary of State for the Home Department whether the Government would, during the recess, seriously consider the necessity for making a considerable increase to the present staff of factory and workshop inspectors; and whether, in order to overcome the objection that had been urged that such increase would involve a serious expenditure out of the public funds, the Government would authorise organised bodies of workmen to appoint and pay inspectors, providing the Government retained the power to accept, control, and dismiss men selected by the workmen's organisations.—Mr. Matthews replied that the Government would consider the question during the recess. Any definite action could not be decided upon until the select committee reports. The Government would not be able to entertain the proposal made in the second paragraph.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.*

BLUETT, J., M.R.C.S., L.S.A., has been reappointed Medical Officer of Health to the Chesterfield Borough.

BURTON, S. H., M.B., B.S.Lond., F.R.C.S.Eng., has been appointed Assistant Surgeon to the Norfolk and Norwich Hospital, vice M. Beverley, appointed Surgeon.

CASSAL, Mr. C. E., has been appointed Analyst for St. Mary, Battersea, Parish.

COLLINS, E. TREACHER, M.R.C.S., L.R.C.P., L.S.A., has been appointed Curator and Librarian to the Royal London Ophthalmic Hospital, Moorfields.

HUTCHINSON, PROCTER, M.R.C.S., late Resident Medical Officer, has been appointed Assistant Surgeon to the Hospital for Diseases of the Throat, Golden-square, W.

MACLINTOCK, J., M.D., M.B., and C.M.Edin., has been appointed Medical Officer of Health for the Borough of Leeds.

MILLIGAN, WM., M.B.Aberd. and C.M., has been appointed House Physician to the Northern Hospital, Liverpool.

ROBERTSON, A., M.A., M.B., C.M.Edin., has been appointed Assistant House Surgeon to the Halifax Infirmary and Dispensary, vice C. M. Hill, M.R.C.S. &c., resigned.

SCOTT, KENNETH M., M.B., C.M.Edin., M.R.C.S., has been appointed House Surgeon to the Central London Ophthalmic Hospital, Gray's-inn-road, W.C., vice L. S. Manning, M.B., C.M.Aberd., resigned.

TURNER, GEORGE, M.B., L.R.C.P.Lond., M.R.C.S., has been reappointed Medical Officer of Health for Bishop Stortford, Buntingford, Hertford, and Ware Rural Sanitary Districts, and for Bishop Stortford, Hertford, and Ware Urban Sanitary Districts.

WOOLTERTON, E. G., L.R.C.P. and L.M., L.R.C.S.Edin., has been appointed Medical Officer of No. 2 District of the Aylesbury Rural Sanitary District.

Vacancies.

In compliance with the desire of numerous subscribers, it has been decided to resume the publication under this head of brief particulars of the various Vacancies which are announced in our advertising columns. For further information regarding each vacancy reference should be made to the advertisement.

BOROUGH OF SHEFFIELD.—Resident Medical Officer for the Winter-street Hospital.—Resident Medical Officer for the Lodge Moor Hospital. Salary for the former, £200 per annum, and for the latter £150 per annum, with board, lodging, and attendance.

GENERAL HOSPITAL, Birmingham.—Assistant House Surgeon. No salary, but residence, board, and washing will be provided. Appointment for six months.

GENERAL HOSPITAL, Nottingham.—Junior Resident Medical Officer. Salary £100 for first year, with an addition of £10 a year up to £120, with board, residence, and washing.

LIVERPOOL DISPENSARIES.—Assistant Surgeon. Salary £80 per annum, with apartments, board, and attendance.

LIVERPOOL NORTHERN HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with residence and maintenance in the house.

MEDICAL MISSIONARIES.—Apply to R. H. Combes, Secretary, Guild of St. Luke, Galeston, Eton-avenue, Hampstead, N.W. Doubly qualified Medical Man, to proceed to Magila, E. Africa. Salary £200 per annum.—Medical Missionary for Madagascar.

ROYAL HOSPITAL OF BETHLEHEM, London.—Assistant Medical Officer. Salary £300 per annum, with residence in the hospital, furnished only with planned and fitted furniture, and an annual allowance of coals and gas.

SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN, Lower Seymour-street, Portman-square, W.—Physician to Out-door department.

UNIVERSITY OF ABERDEEN.—The chair of Chemistry in the University.

VICTORIA HOSPITAL, Burnley.—Resident Medical Officer. Salary to commence at £80.

WINCHCOMBE UNION.—Medical Officer. Salary £65 per annum, and in addition, midwifery, surgical, and vaccination fees.

Births, Marriages, and Deaths.

BIRTHS.

BARLOW.—On the 9th inst., at Wimpole-street, W., the wife of Thomas Barlow, M.D., F.R.C.P., of a daughter.

GREENFIELD.—On the 11th inst., at Heriot-row, Edinburgh, the wife of W. S. Greenfield, M.D., F.R.C.P., of a daughter.

MARRIAGES.

BATTEN—CONDER.—On the 14th inst., at East Parade Chapel, Leeds, by the father of the bride, Rayner Derry Batten, M.D.Lond., eldest son of John W. Batten, Esq., of Airlie-gardens, London, to Katharine Roubiliac, second daughter of the Rev. E. R. Conder, D.D., of Leeds.

HUBBARD—JONES.—On the 9th inst., at the Parish Church, Beckenham, by the Rev. Geo. Jones, B.A., brother of the bride, assisted by the Rev. Henry Arnott, Rector, Walter Lovett Hubbard, M.R.C.S.E., L.R.C.P.Lond., M.D.Brux., of Rugeley, Staffordshire, to Annie, second daughter of R. Hesketh Jones, Esq., J.P., of Beckenham, Kent.

SMITH—FELTHAM.—On the 25th ult., at St. John's Church, Wynberg, Cape of Good Hope, by the Rev. Ralph Doyle, Rector, assisted by the Rev. Rice Thomas, M.A., Chaplain to the Forces, Frank Smith, M.R.C.S.E., L.R.C.P. and L.M., of Coventry, to Bertha, elder daughter of H. J. Feltham, Esq., of Stellenberg, Wynberg.

THOMPSON—GRAHAM.—On the 8th inst., at Worthing, William Fookes Thompson, M.B., of Launceston, Cornwall, to Harriet, younger daughter of Thomas Graham Graham, Esq., of Trevecr, Worthing.

DEATHS.

BRYANT.—On the 23rd ult., at his residence, College-lane, Gibraltar, after a short illness, John Henry Bryant, M.R.C.S., L.R.C.P., elder son of the late Dr. Bryant, of Sussex-square, Hyde-park, and Highwoods, Reading, in his 46th year.

STALKER.—At Kaitangata, Province of Otago, New Zealand, Daniel Stalker, M.A., M.B., younger son of Daniel Stalker, Leven, Fife, in the 34th year of his age. (By telegram.)

N.B.—A fee of 5s is charged for the Insertion of Notices of Births, Marriages, and Deaths.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 16th, 1888.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb.	Wet Bulb.	Solar Radia. in Vacuo.	Maximum Temp. Shade.	Min. Temp	Rainfall.	Remarks at 8.30 A.M.
Aug. 10	30·13	S.W.	73	68	124	87	67	..	Bright
,, 11	30·10	S.W.	65	60	86	69	59	..	Overcast
,, 12	30·01	S.W.	66	62	111	73	53	..	Cloudy
,, 13	29·86	S.W.	64	58	122	72	57	..	Cloudy
,, 14	30·21	N.E.	59	52	111	70	51	..	Bright
,, 15	30·11	E.	57	53	101	65	52	..	Hazy
,, 16	30·15	E.	56	50	107	62	49	..	Bright

Notes, Short Comments, & Answers to Correspondents.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

All communications relating to the editorial business of the journal must be addressed "To the Editors."

Lectures, original articles, and reports should be written on one side only of the paper.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed to the Sub-Editor.

Letters relating to the publication, sale, and advertising departments of THE LANCET *to be addressed "to the Publisher."*

We cannot undertake to return MSS. not used.

INTERMITTENT MANIA.

INHIBITORY PARESIS may be induced by an infinity of causes—by cessation of mechanical work, change of locality, or both these conditions combined. This was noticed by the physicians of antiquity—by none more pointedly than by Aretæus, whose "floruit" is placed by scholars about A.D. 150. In the chapter περὶ Μανίης of his singularly thoughtful and well-written treatise he adduces the following instance. A house-constructor, as long as he was at work on the premises, proved himself a skilled artisan, capable of measuring, cutting, planing, joining, adapting, and finishing off correctly the woodwork of the house he was engaged upon; he would mix familiarly with the journeymen he hired (ἐργοδότησι), bargain with them, and pay them a just wage for their work. In this way, so long as he was on the scene of operations, he was in full possession of his faculties. But if he happened to go to the market-square, to the bathing establishment, or to any other place where necessity called him, he would no sooner have laid down his tools than he would begin to groan, then shrug his shoulders as he sallied forth, till he had got out of sight of his familiars and of the work and place he was employed at, whereupon he became a perfect madman (πάμπαν ἐξεμαίνετο). But he had only to come quickly back to the scene he had left, and at once he was in his right mind. Such, says Aretæus, was the association in his case between locality and reason.

Messrs. Hertz and Collingwood.—It would be against our rule to name a gentleman for the purpose.

W. C., M.R.C.S., L.R.C.P.—A legal agreement is of course binding.

ARTIFICIAL RESPIRATION.

To the Editors of THE LANCET.

SIRS,—Will you permit me a few lines to draw attention to a method for producing artificial respiration in a new-born infant. It is this:—Place the infant on its back, feet towards you, with your hands sling-like beneath its body about midway, the thumbs in front round the thorax. Now raise your hands a few inches upwards, so that the body becomes arched by the extremities falling on either side. Do this lifting about fifteen or twenty times in the minute, keeping the body in the upward position for a short period each time. In lowering the body apply gentle pressure by squeezing the thorax with your hands and thumbs. One important point in this method is that both mouth and glottis are opened, and any fluid in the trachea or lungs is able to flow out. I have found this means of producing artificial respiration successful on several occasions, and in one case where Marshall Hall's method had failed.—I am, Sirs, yours truly,

West Kensington, Aug. 12th. EDGAR JENNINGS, M.R.C.S., L.S.A.

MEDICINE'S FORGOTTEN WORTHIES.

AN "Old Mortality" of medical training and sympathy might do for the deserving practitioners of times past what the descendant of the Scottish Covenanters (in perhaps the most powerful of the Waverley Novels) did for his progenitors in the cause of religious toleration and civil freedom. Nowhere throughout Christendom—ay, even in savage countries—would he lack opportunity or material for his work of epitaphial rehabilitation. Let the medical man, on his too brief holiday, whether at home or abroad, take a stroll through the cemetery of town, or village, or hamlet, and he cannot fail to come across the tombstone, dating one or even two centuries back, of some professional brother who to prolong or to sweeten the lives of his fellows made willing sacrifice of his own. The inscriptions in which such an honourable career is set forth are often quaint, not seldom striking, always interesting. Many a romance of still-life lies unevolved in the simple lines, and sets the sympathetic reader on a train of mental reconstruction which his heart tells him cannot be far from the truth, however the imagination may mould the details. When the gay world transfers its pleasure-seeking self to sequestered Alpine regions, it might now and again make salutary use of its time in visiting the modest little "God's acre," and reading in the inscriptions over the "rude forefathers of the hamlet" the secret of many a happier, if humbler, life than its own. Switzerland is full of these biographical surprises and tombstone homilies. Nowhere, indeed, will the searcher after "Medicine's forgotten worthies" find more occasion for the rehabilitating task when in the congenial mood. In the old church of Thun, for instance, standing surely on the sweetest knoll ever chosen for a last resting-place, within sight of the venerable snow-hills, within hearing of the blue and swift-flowing Aare, and encompassed with wooded slopes and picturesque châlets, the abodes of "industrious peace," lies an honourable physician, whose name (and hardly even that) is all that survives of him among the townsfolk for whose ancestors he lived and laboured. Half hidden under the archway that leads to the church portal a quaint tablet let into a corner of the wall arrests the eye with its polyglot inscription in Hebrew, Greek, and Roman characters. Some "Old Mortality"—possibly a pious descendant—has retraced the words, which even now are only just legible, on the stone. Omitting the Hebrew, we read:—

Ἰησοῦς	E Mundo immundo
Ἴασις	Mundus

JOHANNES RUBIN, Medicinæ Doctor, Bürger der Statt Thun, lebte auf Erden 72 Jahre.
Gott liesse mich die Kunst der Leibs-arzneyen wissen,
Der Seele war ihr Artzt anss Gottes Wort bekannt,
Der Tod hat meiner Kunst den schwachen Leib entriasen,
Die Seele lebt vernügt in ihres Artztes Hand.
1720.

which, translated, sets forth:—

Jesus is Healing	Unspotted from the World

JOHN RUBIN, Doctor of Medicine, Citizen of the town of Thun, lived on earth seventy-two years.
God enabled me to know the art of bodily healing; from God's Word the soul knew its Healer. Death has wrested from my art the frail body; the soul lives in bliss in its Healer's hand.
1720.

Possibly a translation of the German quatrain into eighteenth century Latinity may give a better notion of the original than contemporary English prose:—

Me Deus edocuit medicinam corporis ergô,
Verba Dei psychæ ceu medicamen erant.
Ars mea concessit Morti pro corpore pugnans,
Nunc frueris cælo, psycha, medente Deo.

Small "help from fancy" would suffice to conjure up the living presence of the Swiss physician, and the medical historian might profitably muse on the state of science at the time when Harvey's great discovery was still new. Such salutary exercise of head and heart may be indulged in by the practitioner on his holiday, and nowhere to better purpose than in the country which the majority know merely as the "playground of Europe."

A Successful Candidate has enclosed his card but has omitted to communicate his address.

"MOVEMENTS OF EXPRESSION."

To the Editors of THE LANCET.

SIRS,—In connexion with your article on the above subject, it may be interesting if I relate an experience of mine some years ago. Two days after the birth of a male child, I was informed that he had not passed any urine, and on examination I found that the bladder was very much distended. With some difficulty I passed a probe into the urethra, and on the urine bursting forth like a fountain, the child's face changed from one drawn and haggard with pain to one beaming with smiles. In this case a child certainly smiled within three days of birth.

I am, Sirs, your obedient servant,

Southsea, Aug. 11th, 1888. ALBERT BENTHALL, M.R.C.P.

"ARRESTED DEVELOPMENT OF THE ABDOMINAL WALLS."

To the Editors of THE LANCET.

SIRS,—Having seen notes of several cases of the above in your issues lately, I thought particulars of a similar case might be of interest. In August, 1887, I was called in to see a child which had been born the night before my first seeing it. The mother was a primipara and had been attended by a midwife. On examining the child I found a circular aperture in the anterior abdominal wall, situated about midway between the pubes and ensiform cartilage. The opening was about three inches in diameter, and was covered in by a thin membrane of a yellowish-green colour, into the lower portion of which the cord (a small and slender one) was inserted. The margin of the aperture was well defined, and had a rounded appearance as though the skin were turned in under itself. Whenever the child cried the membrane was forced out by the intestines and became quite tense, in fact, I was alarmed at first for fear it might rupture. In other respects the child was a fine healthy boy. The cord fell off in the usual manner, and the skin gradually grew over the membrane, from the circumference towards the centre, until the whole was covered in. After this skinning over had taken place the whole presented a puckered appearance, the skin being arranged in folds radiating from the point of insertion of the cord. The abrupt margin of the circle can still be distinctly made out on manipulation, and of course the abdominal wall is weak at this part, and requires to be supported by a belt having a pad sufficiently large to overlap the margins of the aperture. The child has grown rapidly since birth, and is now well and strong.

The treatment adopted was simply to place a piece of oiled lint over the membrane, and on this a pad made out of a large cork bung, covered with wash-leather, and of sufficient size to overlap the margins of the opening. This was fixed by a few strips of adhesive plaster and a bandage applied. Later on, when the skin had grown over the membrane, an ordinary umbilical bandage with a large pad was worn, and is still worn. I did not form any opinion as to the nature of the membrane at the time, but it was possibly the expanded tissues of the cord.

I am, Sirs, yours faithfully,

Farnborough, Aug. 5th, 1888. I. TRACY SIMPSON, M.R.C.S., &c.

E. T. S.—There is evidence of much curious research and patient reading in "Medical Economy during the Middle Ages," by Z. F. Fort (B. Quaritch, London). It is, indeed—what its author describes it—"a contribution to the history of European morals from the time of the Roman Empire to the close of the fourteenth century." But the style is very cumbrous and pedantic, though the facts and illustrations are laboriously compiled. A vivid realisation can be got from the book of the obstacles scientific medicine had to encounter from the belief in supernatural agency as the *causa causans* of disease, and from the consequent recourse to occult remedies for its cure.

Tenax.—A person using the title M.D., C.M. from a United States college ought to indicate the source if using the title in this country. If the person in question has English qualifications, he should indicate the source of his medical degree. We presume that each institution has its own roll of graduates and diplomates; but there is no register of the same legal significance and authority as in the United Kingdom.

Mr. R. Gordon.—If a specimen be forwarded to us, it shall have attention.

VALUE OF REST IN GASTRIC HÆMORRHAGE.

To the Editors of THE LANCET.

SIRS,—The following case may prove interesting to some of your readers, as it shows the great value of absolute rest in gastric hæmorrhage.

On July 3rd I was consulted by W. R——, aged thirty-eight years, who complained of most of the symptoms of gastric ulcer. He had not vomited blood or passed blood by stool. I put him on Hudson's white mixture, and ordered a milk diet. On July 12th, at 10 A.M., I was hurriedly sent for to see the patient. When I arrived I found him lying in bed. He had then vomited over two pints of blood in about fifteen minutes. I at once injected ergot, placed cloths wrung out of cold water over the stomach, and kept the patient perfectly quiet. I gave a mixture of gallic acid, lead, and opium after each time he vomited. I repeated the injection every fifteen minutes, and in an hour and twenty minutes the hæmorrhage was completely stopped. He vomited about a pint and a half of blood after I got there. I saw him again at 11 A.M. The pulse was very good, and he had no more vomiting. I ordered an exclusively milk diet, the patient to be kept at perfect rest. About two hours later he got out of bed, directly commenced vomiting blood, and died in ten minutes. When I arrived I was told that he had vomited fully two pints of blood, but could not say, as it was taken away. No autopsy was made.

I am, Sirs, yours faithfully,

Consett, Aug. 6th, 1888. ED. FRAZER, L.R.C.S.I., L.K. & Q.C.P.I.

J. R. L.—Our correspondent deserved a much more grateful recognition of his important services than he has received. We cannot advise him to break the ordinary rule of fraternal service; but there would be no harm in his enlightening the parent of his patient a little by demurring decidedly to the hysteria hypothesis.

SURGEON NUNAN OF H.M.S. "WASP."

MRS. NUNAN, mother of Surgeon Nunan, who was drowned in September last, when the ill-fated *Wasp* foundered, and respecting the hardship of whose case a question was asked last week in the House of Commons by Dr. Kenny, M.P., which was reported by us at the time, writes stating that the reason alleged by the Lords of the Admiralty for refusing her assistance is that at the moment her son was drowned he was not actually supporting her. He had, however, done so, and intended to renew his assistance in the immediate future, and our correspondent thinks that she has a reasonable and equitable claim for assistance from the Government in her widowed and infirm old age.

Valetudinarian.—There are, up to the present, in the Canton Grisons seventeen mineral baths and twenty-six springs used medically for bathing and drinking, and there are nine springs of which the water is exported. But equally important with these are the climatic sanatoria, of which the number is now twenty, and their elevation above the sea from 920 to 1856 metres. Most of these are open in summer only; but DAVOS, St. Moritz, and Maloja are celebrated winter resorts. As a whole, the scenery is magnificent, and opportunities for the pursuit of botany are abundant.

Sumbul.—The question is put in too vague a form to admit of a satisfactory answer.

Mr. Geo. Gent.—He can use his degree if he indicates the source of it.

THE PAY PRINCIPLE IN HOSPITALS.

To the Editors of THE LANCET.

SIRS,—I have read the articles in THE LANCET on the above subject from time to time with much interest. I know something of the practical working of it. I am connected with a hospital where the principle has been in operation for a dozen years with the most satisfactory results. It is not carried out by "exacting payments." It is carried out in the following manner:—1. The patient or the responsible friends are asked to contribute to the funds according to their means; the scale of charges is a sliding one. 2. In case the patients or friends cannot pay anything, the clergyman of the district where the patient comes from, or some other equally well-known person, may make a collection among a few who know the circumstances of the case to defray the weekly payments. If anything remains over, it is retained in the hands of the collector for the next case. 3. Trade societies and other organisations pay for their members. Now all trade societies are well able to pay for the hospital treatment of the members. 4. It is not too much for a master or mistress to pay hospital expenses for three or four weeks for a faithful servant. A great deal of money might be saved to the London hospitals by a little more care in admitting patients from the provinces. In many of the cases the persons are quite able to pay a liberal fee to their medical adviser. In their native districts the probability is that it is never known that these persons were charity inmates of a London hospital, except in the case of a death, where the body is brought home for interment.

I am, Sirs, yours faithfully,

Belfast, August, 1888. W. K. M'MORDIE.

An Honorary Secretary.—We think our correspondent must have misunderstood the secretary of the Hospital Sunday Fund. At any rate, he has received a very imperfect notion of the many data which enter into the consideration of the Distribution Committee of the Hospital Sunday Fund in making their award. They are required by the rules in every case to fully inquire into the merits and pecuniary needs of the institution, and the award is to depend on the judgment formed by the Committee upon such merits and needs. We need not say that "merits" involve a consideration of work and results.

Dr. T. D. Smyth (Quebec).—Yes, the name, qualifications, and address are correctly given in the Register for 1888.

Cibum peters.—Our forthcoming Students' Number, to be published on the 8th prox., will contain the information desired in a complete form.

"PAINLESS KILLING."

To the Editors of THE LANCET.

SIRS,—Your note under this heading in your last issue reminds me of a plan I have adopted for some years in my own poultry yard. A large wide-mouthed stoppered bottle is kept charged with an ounce of chloroform. When a chicken has received sentence of death, it is held firmly under the left arm and its head slipped into the mouth of the bottle. A few deep inspirations follow, and the bird without a struggle becomes unconscious. Then, holding it by the legs, its neck is dislocated by a quick stretch. This appears to be a perfectly "happy despatch." The plan is so simple and expeditious that it might be generally adopted.

I am, Sirs, yours faithfully,

Manchester, Aug. 6th, 1888. F. BADEN BENGER, F.I.C., F.C.S.

ERRATUM.—In our report in last week's issue of Dr. Galton's case of Ovariotomy at the Norwood Cottage Hospital, seventh line from the end, for "crusted" read "united," the former conveying an impression of healing by scabbing instead of, as was the case, by first intention.

COMMUNICATIONS not noticed in our present number will receive attention in our next.

COMMUNICATIONS, LETTERS, &c., have been received from—Mr. Reich, London; Dr. E. H. Jacobs, Leeds; Mr. Patterson, London; Mr. T. F. Pearse, Watford; Dr. Robertson, Newcastle-on-Tyne; Dr. Hummel, Philadelphia; Dr. T. D. Smyth, Quebec; Mr. S. D. Hine, Stockland; Dr. Mattison, Brooklyn; Mr. Palmer, Newbury; Messrs. Sampson Low and Co., London; Lieut.-Col. Whale, London; Messrs. Hertz and Collingwood; Mr. J. J. de Z. Marshall, Hastings; Mr. Smith, Great Yarmouth; Mr. R. Gordon; Mr. E. Jennings, London; Messrs. Lee and Martin, Birmingham; Mr. J. P. Murray; Messrs. Reynell and Co., London; Prof. d'Odiardi, London; Mrs. Nunan; Messrs. Eason and Son, Dublin; Mr. A. Benthall, Southsea; Mr. Tupholme, South Kensington; Mr. F. E. Cave, Leeds; Mr. A. Routh, London; Mr. Pye Smith, Sheffield; Mr. L. G. Peters, Gobowen; Messrs. Riddle and Co., London; Dr. J. H. Galton; Mr. Berthier, Paris; Messrs. Dawson Bros., Montreal; Mr. Moullin, Cavendish-square; Messrs. Boot and Son, London; Mr. T. Robinson, London; Mr. Snodgrass, Glasgow; Mr. Sawyer, Birmingham; Mr. Huggins, Malvern; Mr. Dixey, Southsea; Mr. Allan, Liverpool; Mr. Briscoe, Bolton; Mr. Winkworth, Brighton; Mr. May, co. Mayo; Mr. S. Hyde, Buxton; Mr. Colman, Glamorganshire; Mr. Forbes, Stonehaven; Mr. Stephens, Winchcombe; Mr. Johnson, Leicester; Mr. Childs, Leeds; Messrs. Hogg and Son, London; Mr. Unsworth, Liverpool; Messrs. Orridge and Co., London; Mr. Chater, Newport; Mr. Keeley; Messrs. Robertson and Scott, Edinburgh; Mr. A. E. Barrett, London; Dr. Buchanan, Glasgow; Mr. F. N. Williams; Megrim; Royal Infirmary, Glasgow; S.; W. C.; Lex; R. W., Aberdeen; Mens, London; Physician and Surgeon; Nurse, London; An Hon. Secretary; X. Y., Leeds; Lady Superintendent, Hull; Forceps, London; D. D., London; Seaside, London; Tenax; J. R. L.

LETTERS, *each with enclosure*, are also acknowledged from—Major Pead, London; Mr. Gilmore, Bristol; Miss Moses, Merioneth; Mr. Monk, London; Mr. Whittaker, Derby; Messrs. Russell, Liverpool; Dr. J. Coster, Hackney; Mrs. Turner, Finsbury-park; Dr. Stalker, Dundee; Dr. Harding, Whittlesea; Mr. Day, Dublin; Messrs. Burgoyne and Co., London; Mr. Warnots, Brussels; Mr. Crozier; Mr. Dowse, London; Dr. Barnes, Portsea; Mr. Twining, Galloway; Mr. Mundy, London; Mr. Arnold, Gloucester; Mr. Bunting, Notts; Dr. Collins, London; Mrs. Mansoliff, Maidenhead; Mr. Walker, Beds; Mr. Voss, Queensland; Mr. Parker, Bristol; Mr. Rees, Plymouth; Mr. Daglish, Jarrow; Mr. Thwaites, Bristol; Mr. Crassweller; Messrs. Godfrey and Cooke, London; Dr. Aitcheson, Blackburn; Messrs. Squire and Son, London; Mr. Heywood, Manchester; Victoria Hospital, Chelsea; R. W., Chiswick; Studens, Sheffield; Medical, Huddersfield; Guest Hospital, Dudley; M.A., London; A. E., London; S., London; Lady Superintendent, Canterbury; Medicus, London; Medicus, South Hampstead; Medicus, Dewsbury; Applicant, London; Hilda, Yorkshire; G. T., Chard; Cantab., London; Omega, Ipswich; Dorset, London; M., Clapham; J. B., Crewe; Secretary, Maidstone; Aerial, London; Electric, London; Assistant, Leeds; A. B., London; Stanley Hospital, Liverpool; G. L.; Medicus, Exeter; St. John Ambulance Association, London; Tenotome, London; M. M. M.; D. M. E., New Cross; M.D., Derbyshire; Chemist, London; G. H., London; M.B., Maidstone; Surgeon, London; G. I. M., London; C. L. L., London; Anthropos, Leyton; Manchester, London; Sigma, London; T. M., Liverpool; Devonian, London; B., London; X. X. Z., Hackney.

Liverpool Courier, North British Daily Mail, Reading Mercury, Glasgow Herald, Morning Post, Hertfordshire Mercury, Herald and Weekly Free Press, Surrey Advertiser, Freeman's Journal, The Colonies and India, Christian World, &c., have been received.

Medical Diary for the ensuing Week.

Monday, August 20.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, 10.30 A.M., and each day at the same hour.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1.30 P.M., and each day at the same hour.

CHELSEA HOSPITAL FOR WOMEN.—Operations, 2.30 P.M.; Thursday, 2.30.

ST. MARK'S HOSPITAL.—Operations, 2 P.M.; Tuesday, 2.30 P.M.

HOSPITAL FOR WOMEN, SOHO-SQUARE.—Operations, 2 P.M., and on Thursday at the same hour.

METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.

ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.

CENTRAL LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M., and each day in the week at the same hour.

Tuesday, August 21.

GUY'S HOSPITAL.—Operations, 1.30 P.M., and on Friday at the same hour. Ophthalmic Operations on Monday at 1.30 and Thursday at 2 P.M.

ST. THOMAS'S HOSPITAL.—Ophthalmic Operations, 4 P.M.; Friday, 2 P.M.

CANCER HOSPITAL, BROMPTON.—Operations, 2.30 P.M.; Saturday, 2.30 P.M.

WESTMINSTER HOSPITAL.—Operations, 2 P.M.

WEST LONDON HOSPITAL.—Operations, 2.30 P.M.

ST. MARY'S HOSPITAL.—Operations, 1.30 P.M. Consultations, Monday, 2.30 P.M. Skin Department, Monday and Thursday, 9.30 A.M.

Wednesday, August 22.

NATIONAL ORTHOPÆDIC HOSPITAL.—Operations, 10 A.M.

MIDDLESEX HOSPITAL.—Operations, 1 P.M.

ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1.30 P.M.; Saturday, same hour. Ophthalmic Operations, Tuesday and Thursday, 1.30 P.M. Surgical Consultations, Thursday, 1.30 P.M.

ST. THOMAS'S HOSPITAL.—Operations, 1.30 P.M.; Saturday, same hour.

LONDON HOSPITAL.—Operations, 2 P.M.; Thursday & Saturday, same hour.

GREAT NORTHERN CENTRAL HOSPITAL.—Operations, 2 P.M.

SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.—Operations, 2.30 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M.; Saturday, 2 P.M. Skin Department, 1.45 P.M.; Saturday, 9.15 A.M.

ROYAL FREE HOSPITAL.—Operations, 2 P.M., and on Saturday.

KING'S COLLEGE HOSPITAL.—Operations, 3 to 4 P.M.; Friday, 2 P.M.; Saturday, 1 P.M.

CHILDREN'S HOSPITAL, GREAT ORMOND-STREET.—Operations, 9 A.M. Saturday, same hour.

Thursday, August 23.

ST. GEORGE'S HOSPITAL.—Operations, 1 P.M. Ophthalmic Operations Friday, 1.30 P.M.

CHARING-CROSS HOSPITAL.—Operations, 2 P.M.

Friday, August 24.

ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.

Saturday, August 25.

MIDDLESEX HOSPITAL.—Operations, 2 P.M.

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